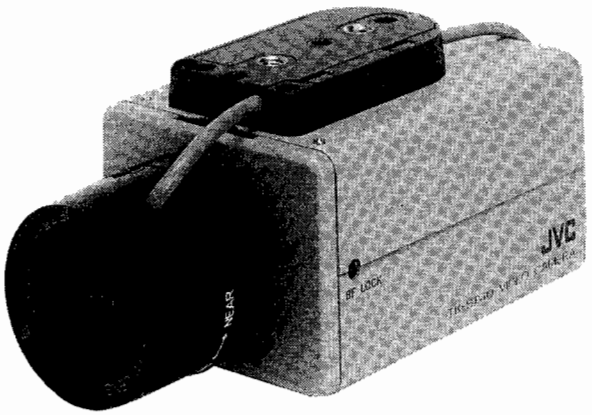
V17820

JVC

SERVICE MANUAL

VIDEO CAMERA

TK-S140



(The lens is optional.)

SPECIFICATIONS

Image sensor	: Interline-transfer CCD
Number of effective pixels	: 250,000 (512 (H) × 492 (V)): U type 300,000 (512 (H) × 582 (V)): E type
Image size	: 1/3 inch
Synchronization method	: Genlock (special sync signal from exclusive CCU)
Scanning frequency	: (H) 15.73 kHz (V) 59.95 Hz: U type (H) 15.625 kHz (V) 50 Hz: E type
Resolution	: 380 TV lines (horizontal)
Video S/N ratio	: 50 dB
Minimum required illumination	: 0.3 lx (F1.4)
Lens mount	: C/CS mount
Power supply	: Fed from an exclusive CCU
Power consumption	: 16–22 V, 210 mA: U type 16–22 V, 190 mA: E type
Operating temperature range	: –10°C to +50°C (Recommended temperature range: 0°C to +40°C)
Weight	: 410 g
Provided accessory	: Warranty card ..... ×1 : U only 4P Plug .....×1

Design and specifications are subject to change without notice.

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No. 6653
NOV. 1993

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

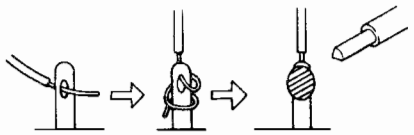


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

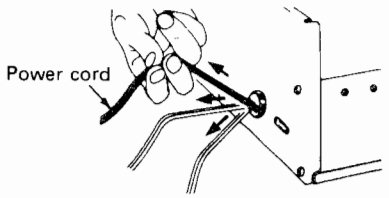


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

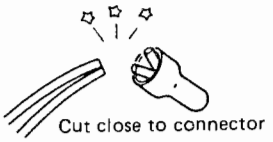


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

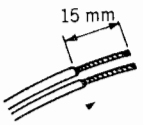


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

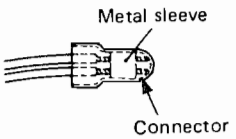


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

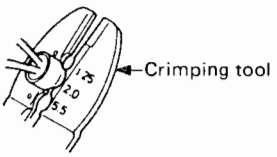


Fig. 6

(5) Check the four points noted in Fig. 7.

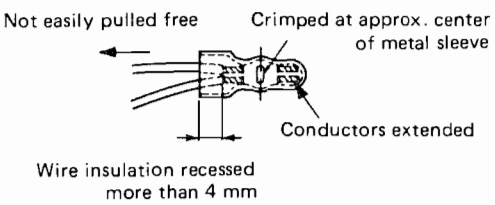

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

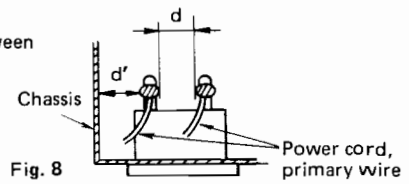


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

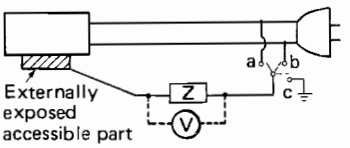


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

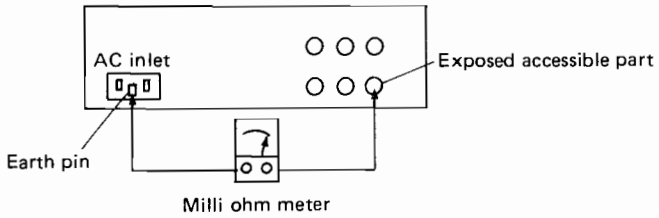


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 REPLACEMENT OF CCD IMAGE SENSOR

- The CCD image sensor is not interchaneable with anything other than the specified one.
- Be careful in handling a new image sensor not to leave fingerprints on the glass surface as well as not to make it grease-stained. To clean dust and greasy stain, breathe out to mist the glass surface and gently wipe it with cotton swab, etc. (Do not use alcohol and the like.)
- After replacement of the CCD image sensor, the set needs to undergo electrical adjustment.
- The image sensor has a weak characteristic in electrostatic destruction. When replacing, make sure to electrostatic shielding of the CCD image sensor.
- For a while after removing the image sensor, there are electric charge remaining at the circuit terminals. If a new image sensor is set into the socket in such a condition, it may damage it in a moment because of stored electric charge. When replacing the image sensor, wait a few (2 to 3) minutes after removing it before setting new one into the socket.

● Removal of CCD image sensor

1. Remove two screws ① from the CCD board and remove the CCD board.

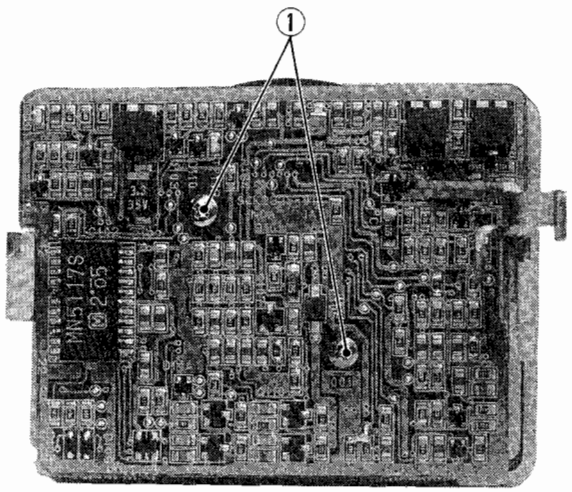


Fig. 1-1

2. Pull the CCD image sensor out of the CCD board.

● Installation of new CCD image sensor

1. When installing a new CCD image sensor, pay attention to its orientation.
2. Install the CCD image sensor as its dent is located in the right side (back focus adjusting screw is located in the left side).

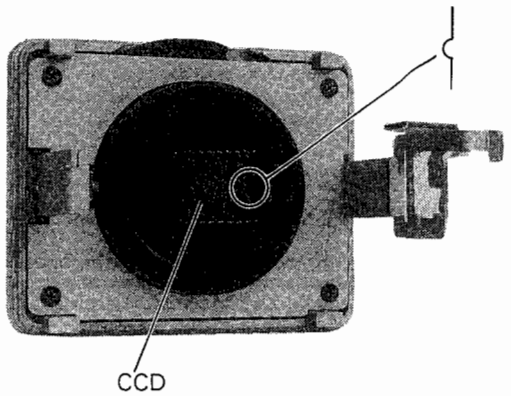


Fig. 1-2

3. Adjust the position of the image sensor's plate while setting it on the CCD board.
4. Reinstall the CCD board with careful attention to the IC socket and pins.

SECTION 2
ELECTRICAL ADJUSTMENT

Electrical adjustment is not needed in general except when the CCD image sensor is replaced. If so, proceed as follows.

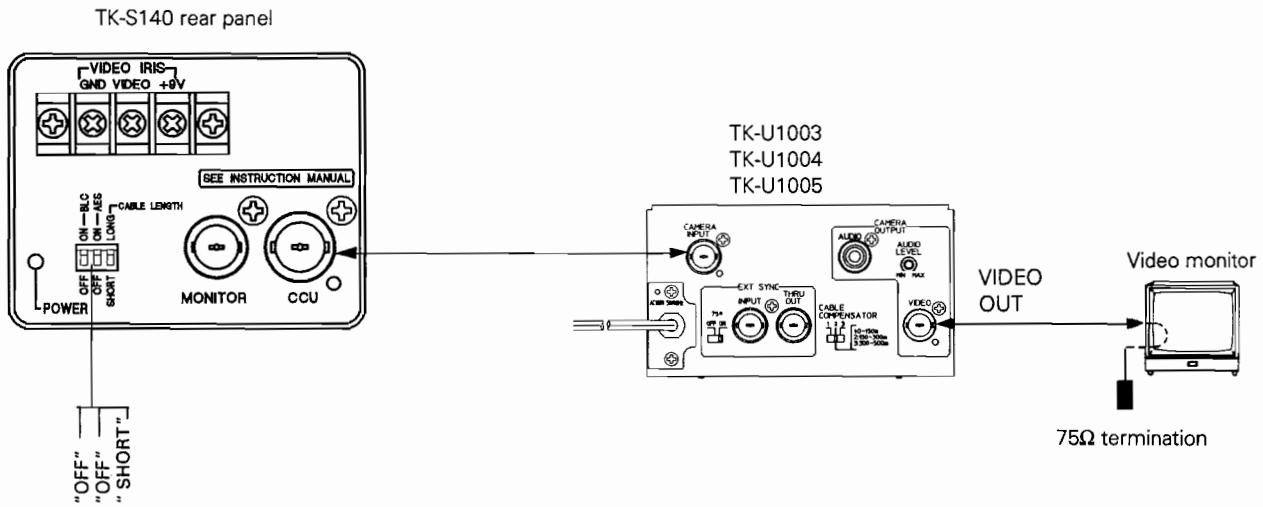
2.1 EQUIPMENT NECESSARY FOR ADJUSTMENT

- Sync signal generator : 75 % white and set up full color bars signals are available from it.
- Oscilloscope : Available for 100 MHz or more band and already calibrated
- Digital voltmeter : Input impedance of 10 MΩ or more
- TV monitor : B/W type
- Lens : C-mount, f = 16 mm, F1.6, Manual iris control

2.2 GENERAL SETUP

Hook up the equipment as shown in the figure.

● **For adjustment of TK-S140**



No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (ⓣ) Adjustment level (☆)	Adjustment procedure

2.3 ADJUSTMENT OF SSG

1	M. Osc adjustment	• Frequency counter	◎ TP201 [SSG] ⓣ M. OSC (VC200) [SSG] ☆ DC 2.5	1) Adjust the frequency as specified.

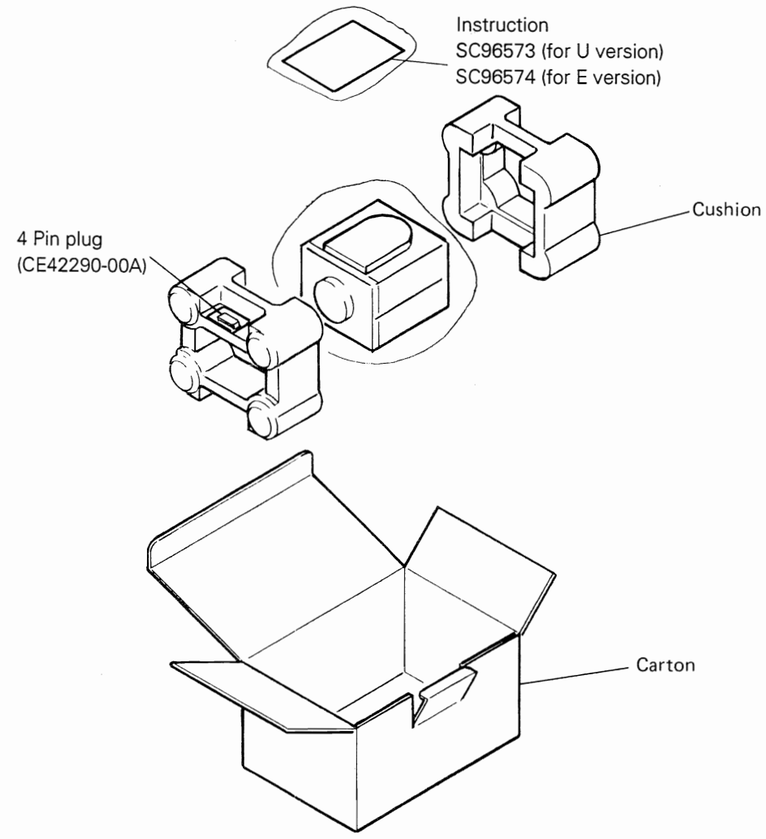
2.4 ADJUSTMENT OF CCD DRIVER

1	Blooming adjustment	• TV monitor	◎ CCU VIDEO OUT [Rear panel] (75Ω terminate) ⓣ V. SUB (VR101) [CCD] ☆ No blooming observed	1) Shoot an object under the fluorescent light or candescent light to observe the image. 2) Set the V. SUB (VR101) nearly to the center position. 3) Open the iris fully to generate blooming (around the candescent light). 4) When blooming is not observed, bring the set close to the light until blooming occurs. 5) Turn the V. SUB (VR101) fully counterclockwise once, then slowly turn it clockwise until blooming disappears.
2	Optical black adjustment	• Oscilloscope (H-rate, 10 : 1) • Lens: Capped	◎ CCU VIDEO OUT [Rear panel] (75Ω terminate) ⓣ OB (VR102) [CCD] ☆ 5 IRE/% (35 mV)	1) Adjust the VR so that the black level is 5 IRE/5% (35 mV) higher than the pedestal level.

2.5 ADJUSTMENT OF VIDEO SIGNAL SYSTEM

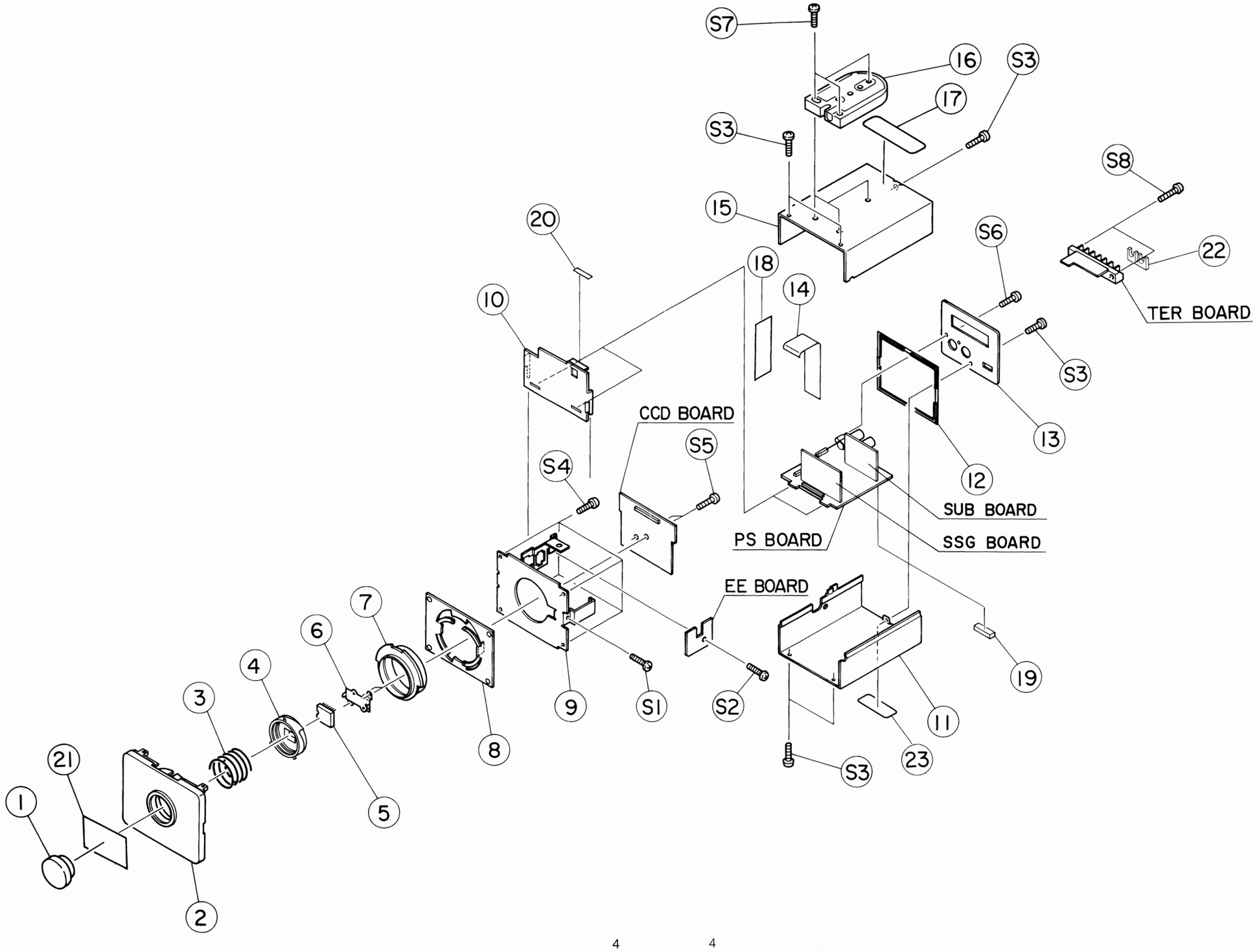
1	Y level adjustment	• Oscilloscope (H-rate, 10 : 1) • Gray scale	◎ CCU VIDEO OUT [Rear panel] (75Ω terminate) ⓣ Y LEVEL (VR103) [CCD] ☆ 100 IRE/% (714/700 mVp-p)	1) Set the lens iris to F16. 2) Adjust Y level as specified.
2	E-E level adjustment		◎ TP103 [CCD] ⓣ ALC LEVEL (VR401) ☆ 120 mVp-p	1) Adjust the lens iris so that video output level becomes 100 IRE/% (714/700 mVp-p). 2) Adjust the VR to obtain the specified level.

SECTION 3
REPACKING



■ TK-S140 ASSEMBLY M1

SECTION 4
EXPLODED VIEW AND PARTS LIST



● TK-S140 Assembly list [M][1]

[M][1][M][M]

Symbol No.	Part No.	Part Name	Description
1	A38305	Cap	
2	SC20489-001	Front Frame	
3	SC45267-001	Spring	
4	SC31648-001	Sensor Base	
⚠ 5	MN3716AE	CCD	U Type
⚠ 5	MN3726AE	CCD	E Type
6	SC45243-001	Sensor Plate	
7	SC31647-001	Adj. Ring	
8	SC45335-002	Leaf Spring	
9	SC31649-001	Holder Plate	
10	SC45234-001	Shield Plate	
11	SC31675-00B	Bottom Cover	
12	SC31650-001	Escutcheon	
13	SC45483-002	Rear Panel	
14	SCV2337-1807BD	Flat Cable A	
15	SC31651-00A	Top Cover	
16	CM21415-C0A	Tripod Base	
17	—	Serial No. Plate	
18	SCV1902-0607K	Flat Cable B	
19	SC45431-002	Cushion	
20	SC45432-001	Cushion	
21	SC40286-001	Sheet	
22	SSV0140	Plate	
23	SS47383-001	Caution Label	U Type
S1	SPSP2610N	Screw	M2.6×10
S2	SDSP2004N	Screw	M2×4
S3	SPSK2040R	Screw	M2×4
S4	YQM30032-36	Screw	
S5	SDSF2008M	Screw	M2×8
S6	SDSF3010N	Screw	M3×10
S7	SPSP2605N	Screw	M2.6×5
S8	SDSP3014M	Screw	M3×14

SECTION 5
CHARTS AND DIAGRAMS

■ SCHEMATIC DIAGRAM NOTES

● Schematic safety precaution

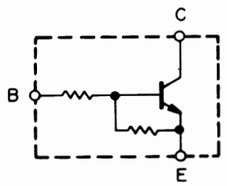
Parts are safety related aprts.
When replacing them, be sure to use the specified parts.

Voltage and waveform measurements.
Voltage: Measured with digital voltmeter in DC range; iris closed.
Waveform: Grey scale illuminated at more than 4000 lux at 3200 K lighting.

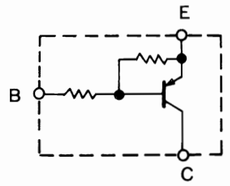
● Terminal logic
Top bar of terminal name show input or output logic.
Top bar shows, the control circuit become active at negative (low) logic input for example.

● Digital transistors

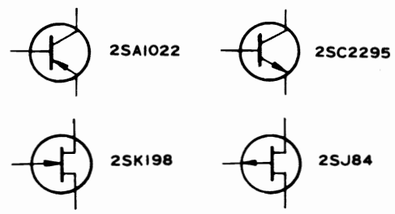
DTC124K



DTA124K/ES



● Unless otherwise specified transistors and F.E.T.s are:

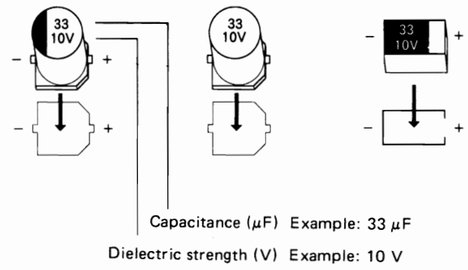


● Definistion of the (A) and the (B) or circuit boards diagrams
(A) : Side on which discrete parts are assembled
(B) : Side on which only chip parts are assembled.

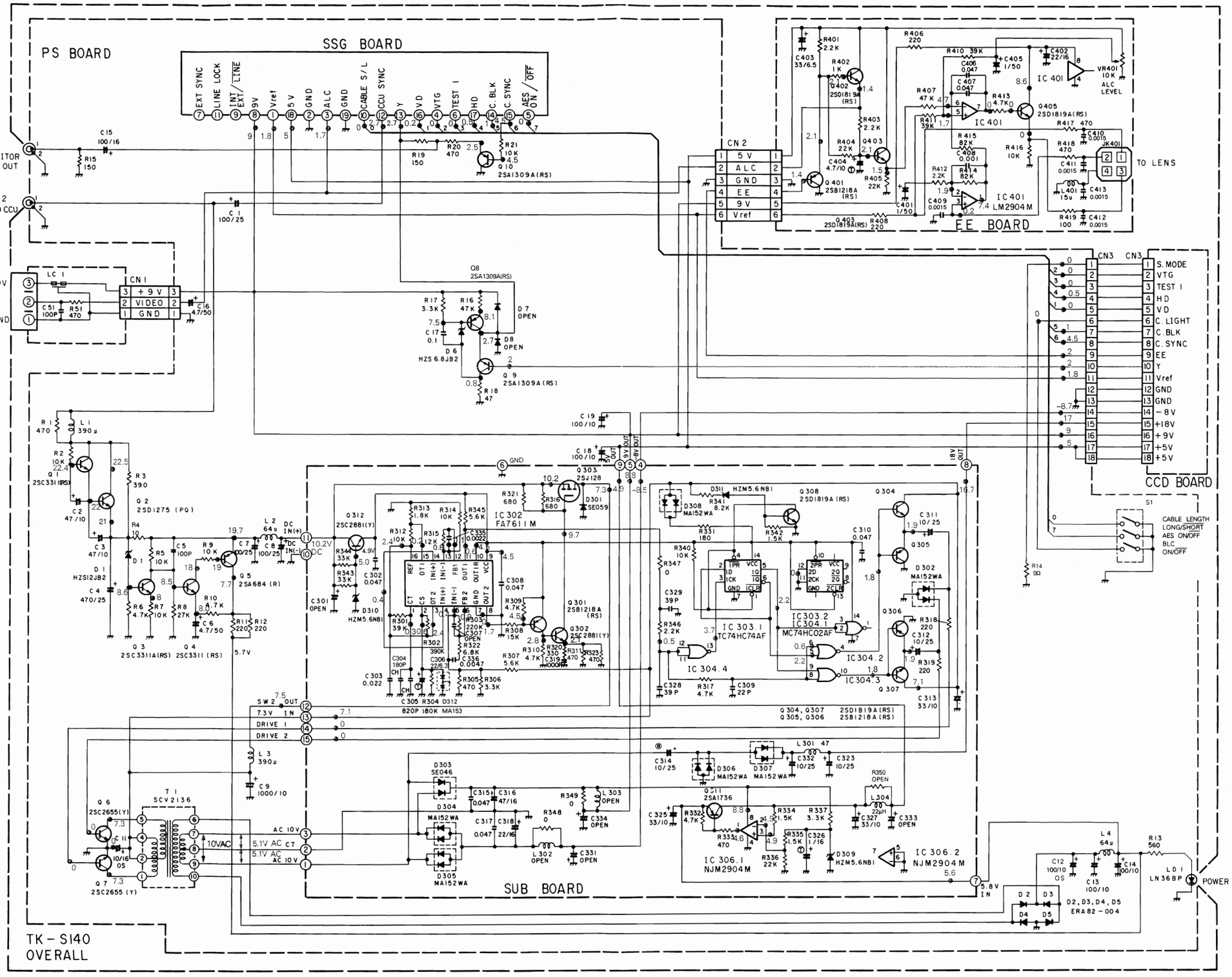
■ REPLACING SUBMINIATURE "CHIP" PARTS

- Some resistors, shoring jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
- Soldering cautions:
  1) Do not apply heat for more than 3 seconds.
  2) Avoid using a rubbing stroke when soldering.
  3) Discard removed chips; do not reuse them.
  4) Supplementary cementing is not required.
  5) Use care not to scratch or otherwise damage the chips.
- Resistors and capacitors are not interchangeable with chip parts which is used in the color cameras BY-110, KY-210, etc., because of size difference. In case of part order, refer to the section "ELECTRICAL PARTS LIST".
- Polarities of chip electrolytic capacitors and chip tanntalum capacitors used in GY-X1 are as illustrated below.
  Polarities indicated by silk-screen printing on P.C. boards are also shown below. When replacing such parts, make sure of polarities.

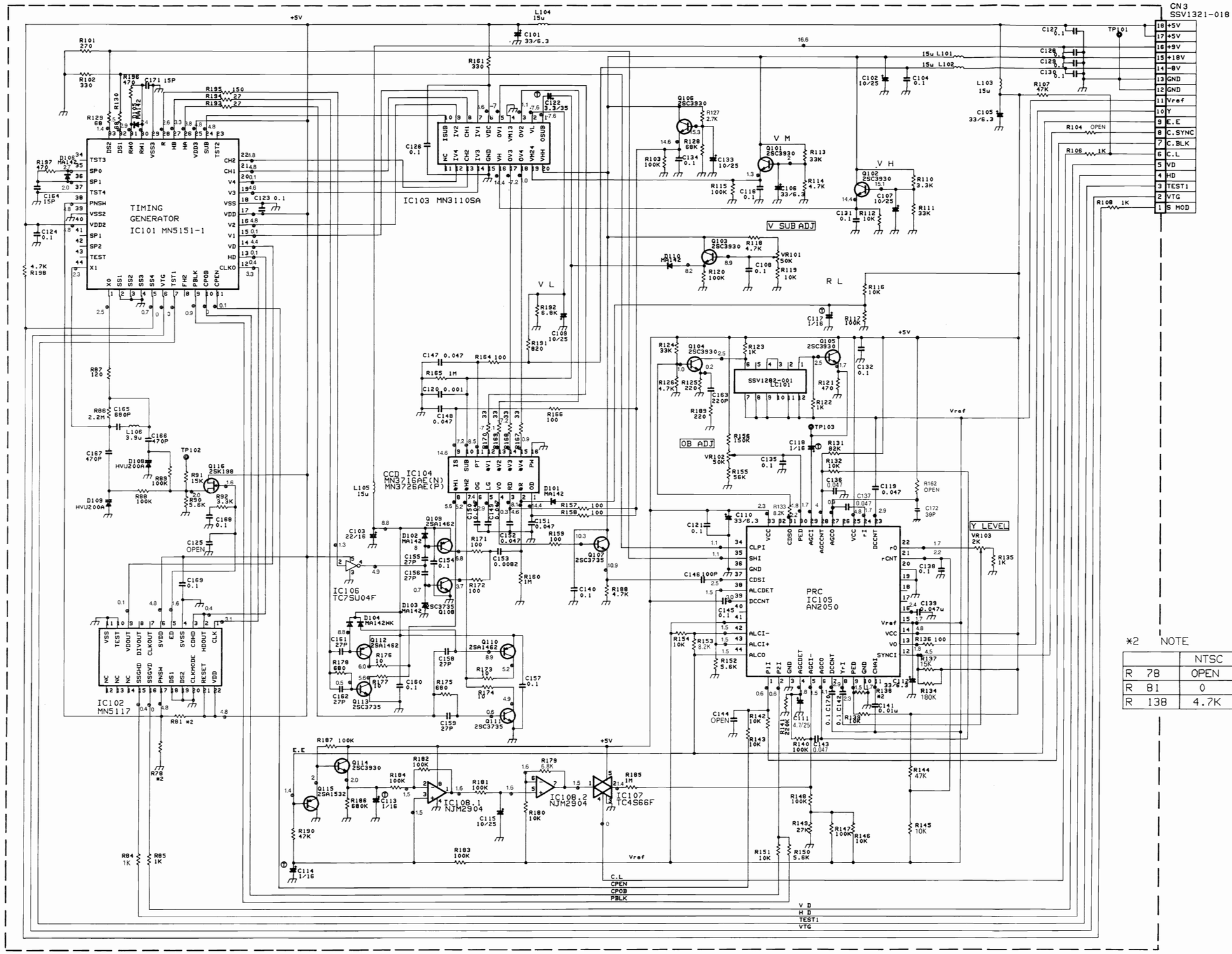
[Electrolytic capacitor] [Non-polarized electrolytic capacitor] [Trantalum capacitor]



5.1 OVERALL WIRINGS



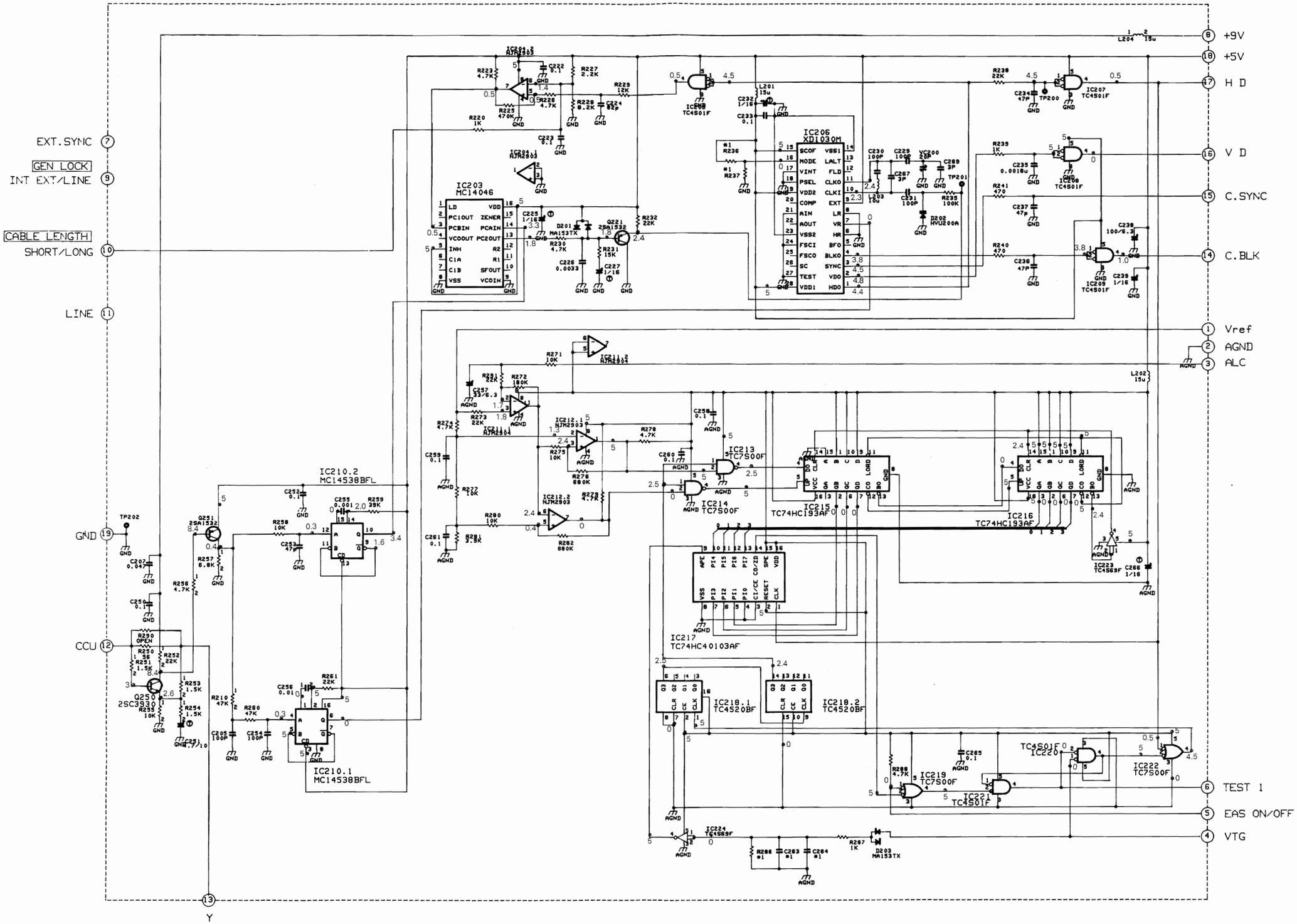
5.2 CCD BOARD SCHEMATIC DIAGRAM [0] [1]



*2 NOTE

	NTSC	PAL
R 78	OPEN	0
R 81	0	OPEN
R 138	4.7K	5.6K

5.3 SSG BOARD SCHEMATIC DIAGRAM 0 2

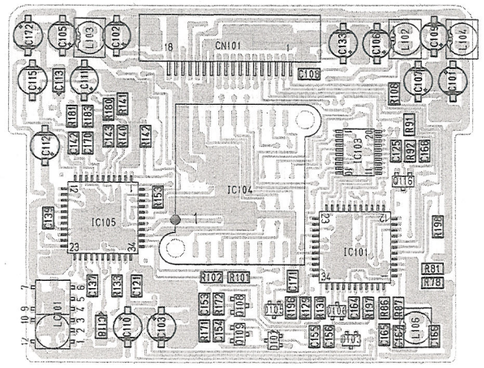


*1	NTSC	PAL
R237	0	OPEN
R236	OPEN	0
R286	56K	3.3M
C263	OPEN	680P
C264	OPEN	680P

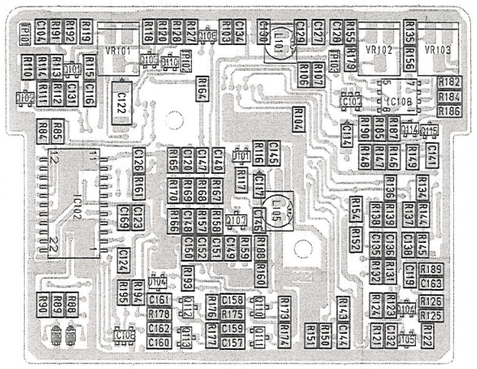
5.4 CIRCUIT BOARD

● CCD Board

Side A

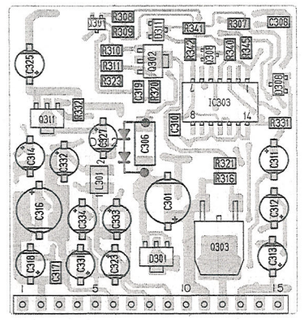


Side B

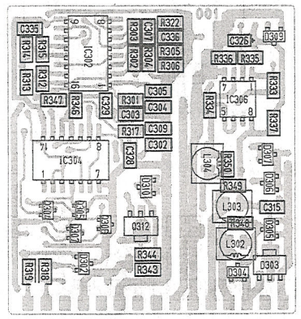


● SUB Board

Side A

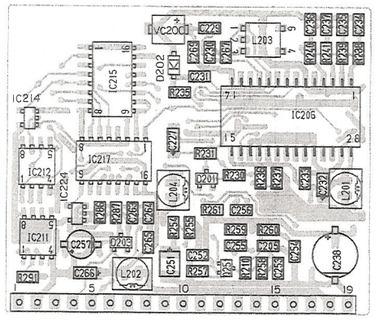


Side B

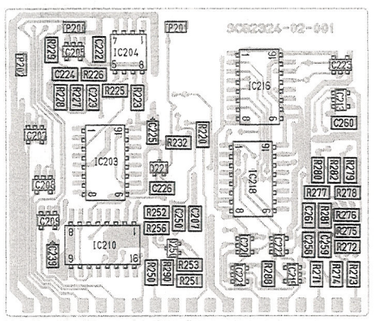


● SSG Board

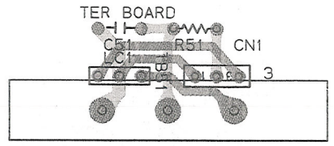
Side A



Side B

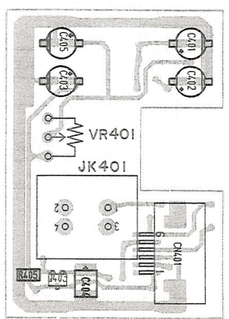


● TERMINAL Board

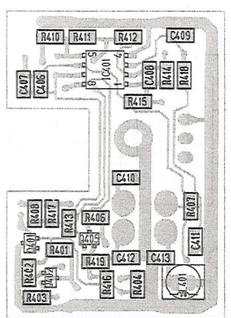


● EE Board

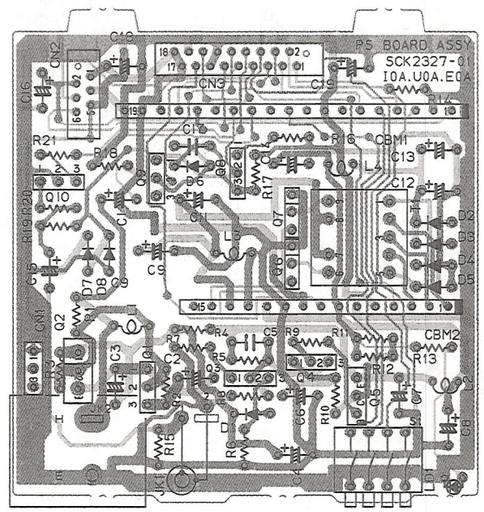
Side A



Side B

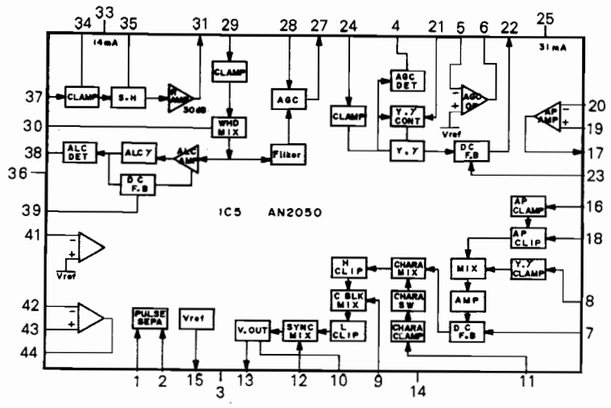


● PS Board

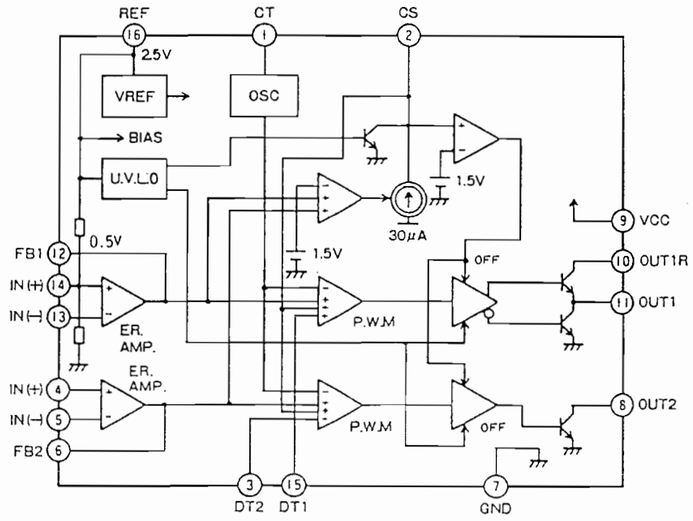


5.5 SCHEMATIC DIAGRAM OF IC's

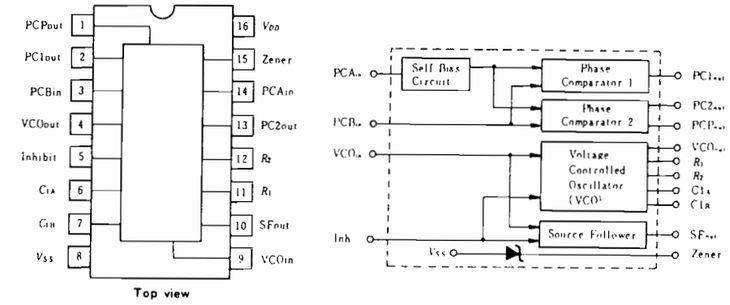
■ AN2050FB 【MATSUSHITA】
(Process)



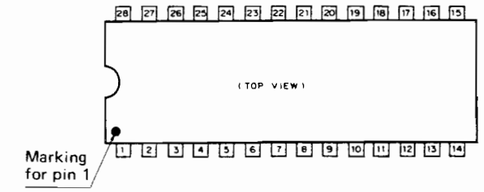
■ FA7611M 【FUJI ELECTRIC】
(Switching Regulator Control)

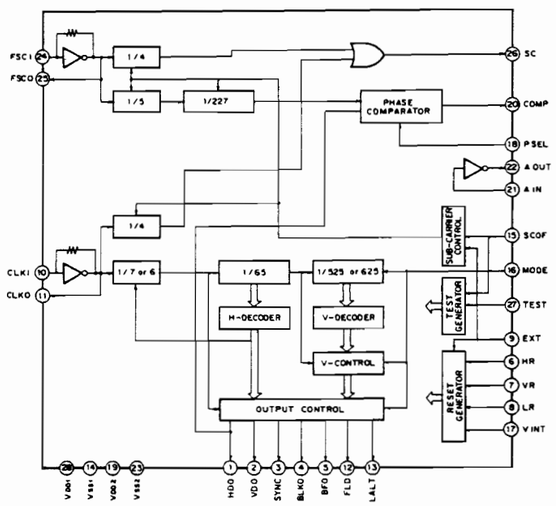


■ MC14046BF 【MOTOROLA】
(Phase Locked Loop)



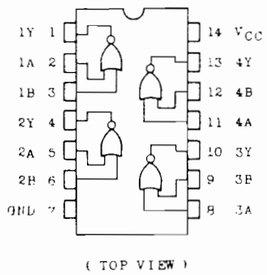
■ CXD1030M 【SONY】
(SSG)

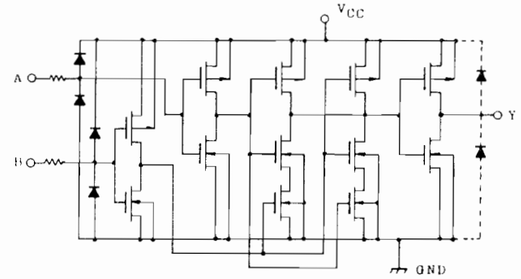




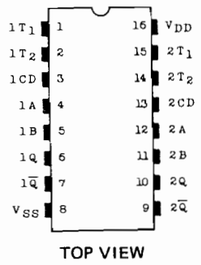
Pin NO	NAME	I/O	FUNCTION
1	HDO	O	Horizontal Drive Pulse
2	VDO	O	Vertical Drive Pulse
3	SYNC	O	Composite Drive Pulse
4	BLKO	O	Composite Blanking
5	BFO	O	Burst Flag Pulse
6	HR	I	Horizontal Reset Pulse Input
7	VR	I	Vertical Reset Pulse Input
8	LR	I	Line Alturnate Pulse Input
9	EXT	I	mode Select
10	CLKI	I	Clock Input (NTSC:14.31818MHz, PAL:14.1875MHz)
11	CLKO	O	Clock Output
12	FLD	O	Field Pulse
13	LALT	O	Line Alturnate Pulse
14	VSS1	-	GND
15	SCOF	I	Subcarrier Output Control (L:OFF)
16	MODE	I	TV Mode Select (L:NTSC/H:PAL)
17	VINT	I	Intiarize Input
18	PSEL	I	Phase Comparetor Polarity Select
19	VDD2	-	+5V
20	COMP	O	Phase Comparator Output
21	AIN	I	Invertor Input
22	AOUT	O	Invertor Output
23	VSS2	-	GND(Invertor)
24	FSCI	I	4fsc Clock Input
25	FSCO	O	4fsc Clock Output
26	SC	O	Subcarrier Output
27	TEST	I	Test Input
28	VDDI	-	+5v

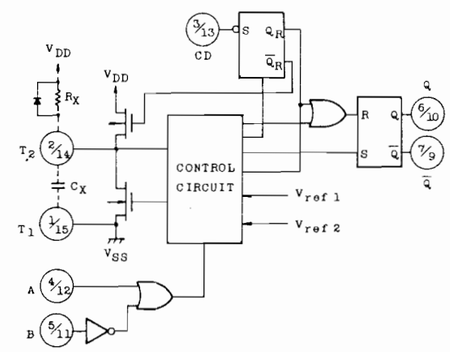
■ MC74HC02AF 【MOTOROLA】
(Quad 2-Input NOR Gates)





■ MC14538BFL 【MOTOROLA】
(Dual Precision Monostable Multivibrator)



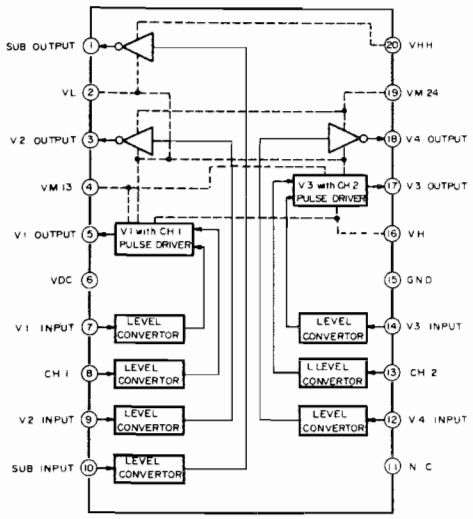


TRUTH TABLE

INPUT			OUTPUT		NOTE
A	B	CD	Q	Q̄	
↓	H	L	⊓	⊔	OUTPUT ENABLE
↓	L	L	L	H	INHIBIT
H	↑	L	L	H	INHIBIT
L	↑	L	⊓	⊔	OUTPUT ENABLE
*	*	H	L	H	INHIBIT

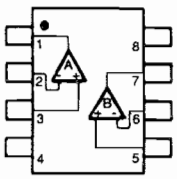
* Don't Care

■ MN3110SA 【MATSUSHITA】
(Vertical Driver)



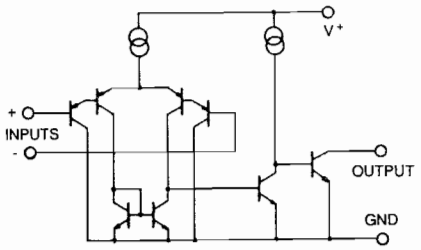
■ NJM2903M 【JRC】
(Dual Single Supply Comparator)

D, M Type
(Top View)

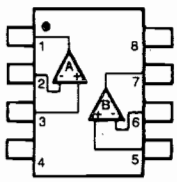


Pin Assignment

1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. GND
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

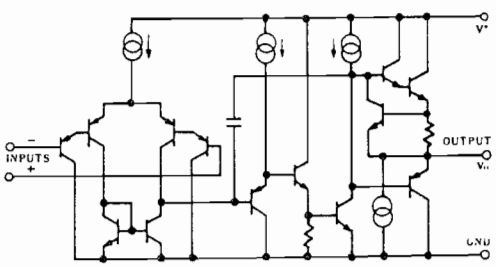


■ NJM2904M 【JRC】
(Dual Single Supply Op.Amplifier)

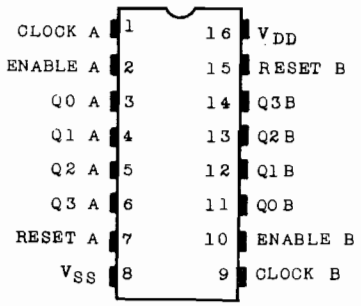


Pin Assignment

1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. GND
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

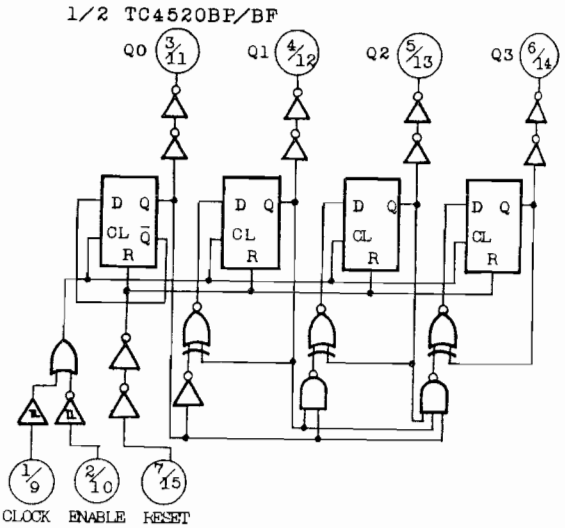


■ TC4520BF 【TOSHIBA】
(Dual Binary Up Counter)

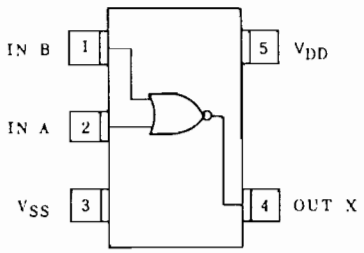


(TOP VIEW)

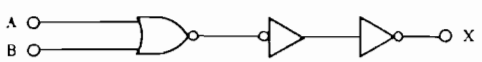
1/2 TC4520BP/BF



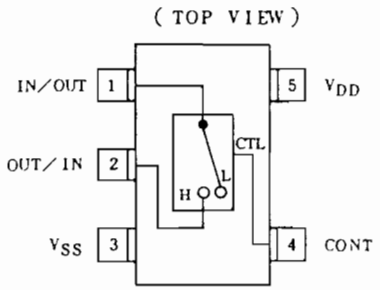
■ TC4S01F 【TOSHIBA】
(2-Input NOR Gate)

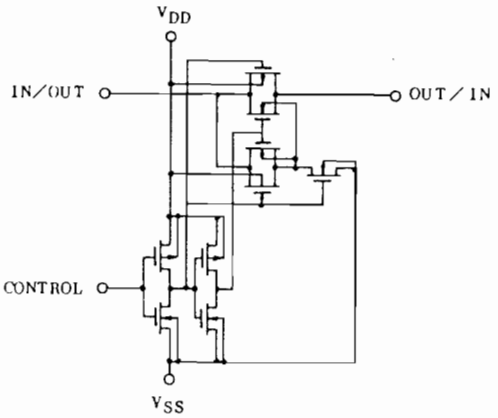


$X = \overline{A + B}$



■ TC4S66F 【TOSHIBA】
(Bilateral Switch)

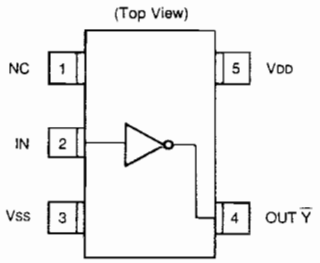


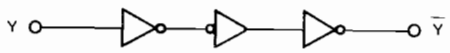


CONTROL	IMPEDANCE BETWEEN IN/OUT - OUT/IN *
H	$0.5 \sim 5 \times 10^2\ \Omega$
L	$> 10^9\ \Omega$

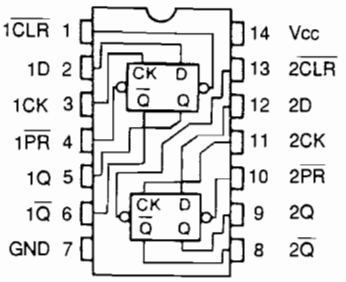
※ See Electrical Characteristics

■ TC4S69F 【TOSHIBA】
(Inverter Gate)





■ TC74HC74AF 【TOSHIBA】
(Dual D-Type Positive-EDGE-Triggered Flip-Flops With Preset AND Clear)

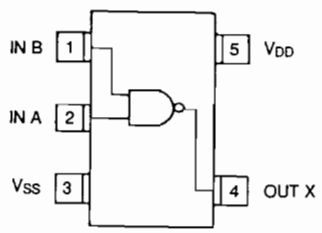


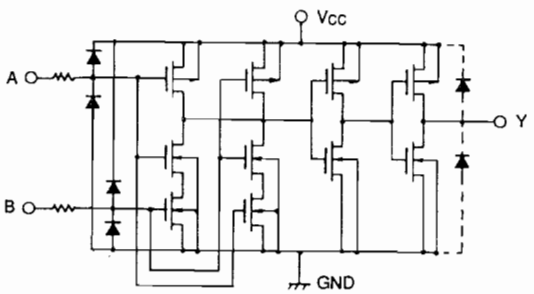
(Top View)

INPUTS				OUTPUTS		FUNCTION
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRESET
L	L	X	X	H	H	—
H	H	L	↑	L	H	—
H	H	H	↑	H	L	—
H	H	X	↓	Q_n	$\overline{Q}_n$	NO CHANGE

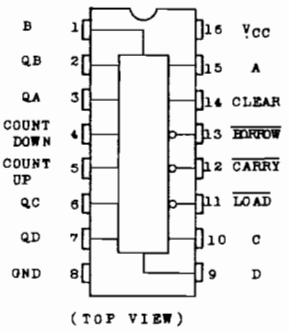
X : Don't care

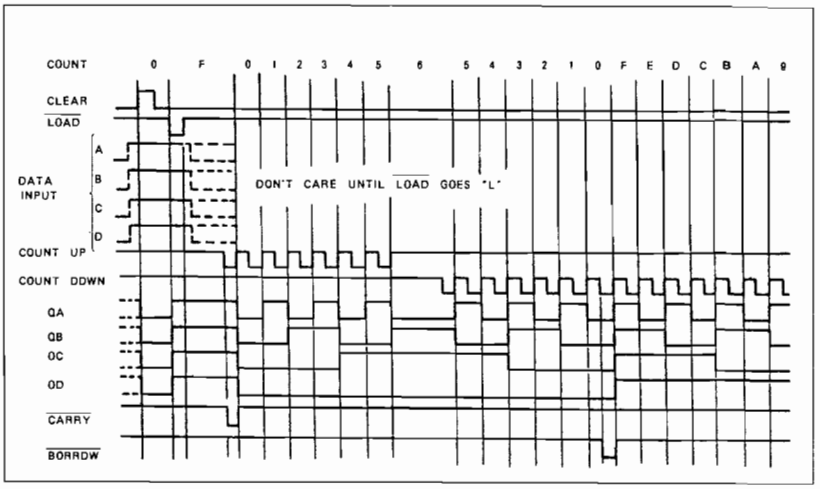
■ TC7S00F 【TOSHIBA】
(2-Input NAND Gate)





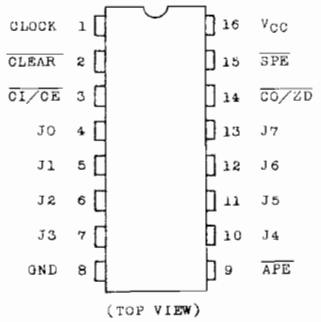
■ TC74HC193AF 【TOSHIBA】
(Synchronous 4-Bit Up/Down Binary Counters With Synchronous Clear)

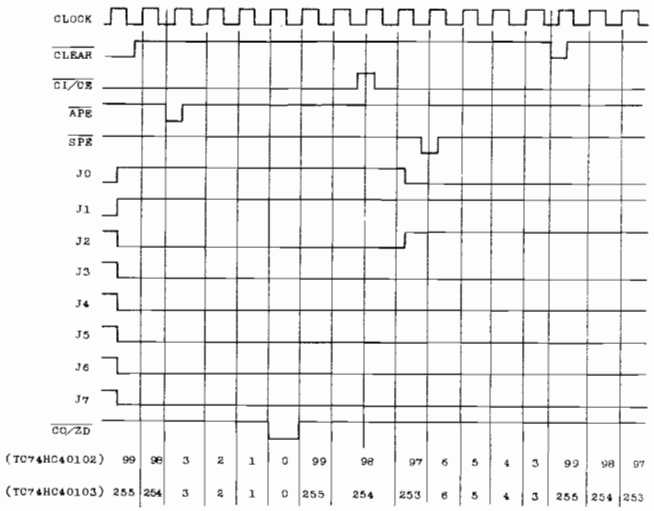




COUNT UP	COUNT DOWN	$\overline{LOAD}$	CLEAR	FUNCTION
↑	H	H	L	COUNT UP
↓	H	H	L	NO COUNT
H	↑	H	L	COUNT DOWN
H	↓	H	L	NO COUNT
X	X	L	L	PRESET
X	X	X	H	RESET

■ TC74HC40103AF 【TOSHIBA】
(8-Bit Binary Programmable Down Counter)

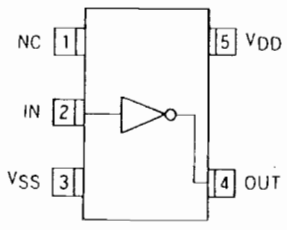




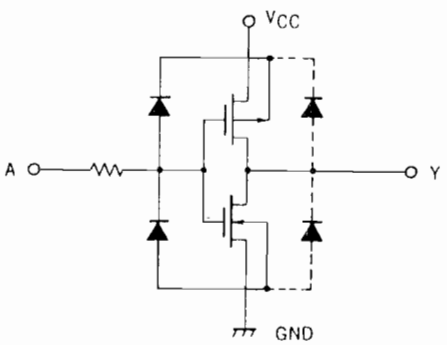
CONTROL INPUTS				PRESET MODE	ACTION
CLR	APE	SPE	CI/CE		
1	1	1	1	Synchronous	Inhibit counter
1	1	1	0		Count down
1	1	0	X		Preset on next positive clock transition
1	0	X	X	Asynchronous	Preset asynchronously
0	X	X	X		Clear to maximum count

■ TC7SU04F 【TOSHIBA】
(Invertor)

Pin arangement



Block diagram



SECTION 6
ELECTRICAL PARTS LIST

SAFETY PRECAUTION:
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified parts numbers.
For maximum reliability and performance, all other replacement parts should be identical to those specified.

NOTE:
- Parts not denoted by parts numbers are not supplied by JVC.
- Abbreviations in this list are as follows:

RESISTORS

In the "Description" column:
All resistance values are in ohms (Ω).
K expresses kilo-ohm (1 000 ohms, kΩ).
M expresses mega-ohm (10^6 ohms, MΩ).

In the "Parts Name" column:

COMP. RESISTOR	:	Composition Resistor
U.F. RESISTOR	:	Non-inflammable Resistor
O.M.F. RESISTOR	:	Oxide Metalized Film Resistor
FUSI. RESISTOR	:	Fusible Resistor
M.P. RESISTOR	:	Metal Plate Resistor
M.G. RESISTOR	:	Metal Graze Resistor
M.F. RESISTOR	:	Metal Film Resistor
W.W. RESISTOR	:	Wire Wound Resistor

CAPACITORS

In the "Description" column:
All capacitance values are in microfarad (μF) unless otherwise indicated.
P expresses picofarad (10^{-12} farad, pF).

In the "Parts Name" column:

TRIM. CAPACITOR	:	Trimmer Capacitor
CER. CAPACITOR	:	Ceramic Capacitor
E. CAPACITOR	:	Electrolytic Capacitor
TAN. CAPACITOR	:	Tantalum Capacitor
MPP CAPACITOR	:	Metalized Polypropylene Capacitor
O.F. CAPACITOR	:	Oil Film Capacitor
MPF CAPACITOR	:	Metalized Polyfilm Capacitor
F.M. CAPACITOR	:	Film Mica Capacitor
P.P. CAPACITOR	:	Polypropylene Capacitor
P.S. CAPACITOR	:	Polystyrene Capacitor

Note: In the "Description" column of the parts list, (U) means the parts for the U version while (E) is for the E Version.

Symbol No.	Part No.	Part Name	Description		
IC1	SCV1585-064	I.C.(M)	JVC	(U)	← for U version
	SCV1585-067	I.C.(M)	JVC	(E)	← for E version

6.1 CCD board assembly list [0][1]

SCK2324-01-N0A/P0A [0][1]□□□□□□

Symbol No.	Part No.	Part Name	Description	
IC101	MN5151-1	I.C.(M)	MATSUSHITA	
IC102	MN5117	I.C.(M)	MATSUSHITA	
IC103	MN3110SA	I.C.(M)	MATSUSHITA	
IC104	SCV2100-001	IC SOCKET		
IC105	AN2050FB	I.C.(M)	MATSUSHITA	
IC106	TC7SU04F	I.C.(M)	TOSHIBA	
IC107	TC4S66F	I.C.(M)	TOSHIBA	
IC108	NJM2904M	I.C.(M)	JRC	
Q101	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q102	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q103	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q104	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q105	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q106	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q107	2SC3735(45)	TRANSISTOR	NEC	
Q108	2SC3735(45)	TRANSISTOR	NEC	
Q109	2SA1462Y3Y4	SI.TRANSISTOR	NEC	
Q110	2SA1462Y3Y4	SI.TRANSISTOR	NEC	
Q111	2SC3735(45)	TRANSISTOR	NEC	
Q112	2SA1462Y3Y4	SI.TRANSISTOR	NEC	
Q113	2SC3735(45)	TRANSISTOR	NEC	
Q114	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q115	2SA1532(BC)	SI.TRANSISTOR	MATSUSHITA	
Q116	2SK198(Q.R)	F.E.T.	MATSUSHITA	
D101	MA142A	DIODE	MATSUSHITA	
D102	MA142A	DIODE	MATSUSHITA	
D103	MA142A	DIODE	MATSUSHITA	
D104	MA142WK	DIODE	MATSUSHITA	
D105	MA142A	DIODE	MATSUSHITA	
D106	MA142A	DIODE	MATSUSHITA	
D108	HVU200A3	V.C.DIODE	HITACHI	
D109	HVU200A3	V.C.DIODE	HITACHI	
D110	MA142A	DIODE	MATSUSHITA	
R78	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R81	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R84	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R85	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R86	NRSA02J-225	M.G.RESISTOR	2.2M	1/10W
R87	NRSA02J-121	M.G.RESISTOR	120	1/10W
R88	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R89	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R90	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R91	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R92	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R101	NRSA02J-271	M.G.RESISTOR	270	1/10W
R102	NRSA02J-271	M.G.RESISTOR	270	1/10W
R103	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R106	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R107	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R108	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R110	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R111	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R112	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R113	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R114	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R115	NRSA02J-104	M.G.RESISTOR	100K	1/10W

Symbol No.	Part No.	Part Name	Description	
R116	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R117	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R118	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R119	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R120	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R121	NRSA02J-471	M.G.RESISTOR	470	1/10W
R122	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R123	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R124	NRSA02J-105	M.G.RESISTOR	1.0M	1/10W
R125	NRSA02J-221	M.G.RESISTOR	220	1/10W
R126	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R127	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R128	NRSA02J-683	M.G.RESISTOR	68K	1/10W
R129	NRSA02J-680	M.G.RESISTOR	68	1/10W
R130	NRSA02J-680	M.G.RESISTOR	68	1/10W
R131	NRSA02J-823	M.G.RESISTOR	82K	1/10W
R132	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R133	NRSA02J-822	M.G.RESISTOR	8.2K	1/10W
R134	NRSA02J-184	M.G.RESISTOR	180K	1/10W
R135	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R136	NRSA02J-101	M.G.RESISTOR	100	1/10W
R137	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R138	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W(U)
	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W(E)
R139	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R140	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R141	NRSA02J-224	M.G.RESISTOR	220K	1/10W
R142	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R143	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R144	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R145	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R146	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R147	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R148	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R149	NRSA02J-273	M.G.RESISTOR	27K	1/10W
R150	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R151	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R152	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R153	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R154	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R155	NRSA02J-563	M.G.RESISTOR	56K	1/10W
R156	NRSA02J-154	M.G.RESISTOR	150K	1/10W
R157	NRSA02J-101	M.G.RESISTOR	100	1/10W
R158	NRSA02J-101	M.G.RESISTOR	100	1/10W
R159	NRSA02J-101	M.G.RESISTOR	100	1/10W
R160	NRSA02J-105	M.G.RESISTOR	1.0M	1/10W
R161	NRSA02J-331	M.G.RESISTOR	330	1/10W
R164	NRSA02J-101	M.G.RESISTOR	100	1/10W
R165	NRSA02J-105	M.G.RESISTOR	1.0M	1/10W
R166	NRSA02J-101	M.G.RESISTOR	100	1/10W
R167	NRSA02J-330	M.G.RESISTOR	33	1/10W
R168	NRSA02J-330	M.G.RESISTOR	33	1/10W
R169	NRSA02J-330	M.G.RESISTOR	33	1/10W
R170	NRSA02J-330	M.G.RESISTOR	33	1/10W
R171	NRSA02J-101	M.G.RESISTOR	100	1/10W
R172	NRSA02J-101	M.G.RESISTOR	100	1/10W
R173	NRSA02J-100	M.G.RESISTOR	10	1/10W
R174	NRSA02J-100	M.G.RESISTOR	10	1/10W
R175	NRSA02J-681	M.G.RESISTOR	680	1/10W

Symbol No.	Part No.	Part Name	Description	
R176	NRSA02J-100	M.G.RESISTOR	10	1/10W
R177	NRSA02J-100	M.G.RESISTOR	10	1/10W
R178	NRSA02J-681	M.G.RESISTOR	680	1/10W
R179	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R180	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R181	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R182	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R183	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R184	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R185	NRSA02J-105	M.G.RESISTOR	1.0M	1/10W
R186	NRSA02J-684	M.G.RESISTOR	680K	1/10W
R187	NRSA02J-684	M.G.RESISTOR	680K	1/10W
R188	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R189	NRSA02J-221	M.G.RESISTOR	220	1/10W
R190	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R191	NRSA02J-471	M.G.RESISTOR	470	1/10W
R192	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R193	NRSA02J-270	M.G.RESISTOR	27	1/10W
R194	NRSA02J-270	M.G.RESISTOR	27	1/10W
R195	NRSA02J-151	M.G.RESISTOR	150	1/10W
R196	NRSA02J-471	M.G.RESISTOR	470	1/10W
R197	NRSA02J-471	M.G.RESISTOR	470	1/10W
R198	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
VR101	NVP1416-503	TRIM.RESISTOR	50K	V SUB ADJ
VR102	NVP1416-503	TRIM.RESISTOR	50K	OB ADJ
VR103	NVP1416-202	TRIM.RESISTOR	2K	Y LEVEL
C101	NEA10JM-336	E.CAPACITOR	33	6.3V
C102	NEA11EM-106	E.CAPACITOR	10	25V
C103	NEA11CM-226	E.CAPACITOR	22	16V
C104	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C105	NEA10JM-336	E.CAPACITOR	33	6.3V
C106	NEA10JM-336	E.CAPACITOR	33	6.3V
C107	NEA11EM-106	E.CAPACITOR	10	25V
C108	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C109	NEA11EM-106	E.CAPACITOR	10	25V
C110	NEA10JM-336	E.CAPACITOR	33	6.3V
C111	NEA11EM-475	E.CAPACITOR	4.7	25V
C112	NEA10JM-336	E.CAPACITOR	33	6.3V
C113	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C114	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C115	NEA11EM-106	E.CAPACITOR	10	25V
C116	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C117	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C118	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C119	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C120	NCT03CH-102	CER.CAPACITOR	1000P	50V
C121	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C122	NEF11VM-335	TAN.CAPACITOR	3.3	35V
C123	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C124	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C126	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C127	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C128	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C129	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C130	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C131	NCF21EZ-104	CER.CAPACITOR	0.10	25V

Symbol No.	Part No.	Part Name	Description	
C132	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C133	NEA11EM-106	E.CAPACITOR	10	25V
C134	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C135	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C136	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C137	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C138	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C139	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C140	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C141	NCB21HK-103	CER.CAPACITOR	0.010	50V
C142	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C143	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C145	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C146	NCT03CH-101	CER.CAPACITOR	100P	50V
C147	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C148	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C149	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C150	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C151	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C152	NCF21HZ-473	CER.CAPACITOR	0.047	50V
C153	NCB21HK-822	CER.CAPACITOR	8200P	50V
C154	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C155	NCT03CH-270	CER.CAPACITOR	27P	50V
C156	NCT03CH-270	CER.CAPACITOR	27P	50V
C157	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C158	NCT03CH-270	CER.CAPACITOR	27P	50V
C159	NCT03CH-270	CER.CAPACITOR	27P	50V
C160	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C161	NCT03CH-270	CER.CAPACITOR	27P	50V
C162	NCT03CH-270	CER.CAPACITOR	27P	50V
C163	NCT03CH-221	CER.CAPACITOR	220P	50V
C164	NCT03CH-150	CER.CAPACITOR	15P	50V
C165	NCT03CH-681	CER.CAPACITOR	680P	50V
C166	NCT03CH-471	CER.CAPACITOR	470P	50V
C167	NCT03CH-471	CER.CAPACITOR	470P	50V
C168	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C169	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C170	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C171	NCT03CH-150	CER.CAPACITOR	15P	50V
C172	NCT03CH-390	CER.CAPACITOR	39P	50V
L101	SSV1330-150	COIL	15μH	
L102	SSV1330-150	COIL	15μH	
L103	SSV1330-150	COIL	15μH	
L104	SSV1330-150	COIL	15μH	
L105	SSV1330-150	COIL	15μH	
L106	SSV1330-3R9	COIL	3.9μH	
LC101	SSV1282-001	L.P.F.		
CN101	SSV1321-018	CONNECTOR	18PIN	
TP101	SSV1096-001	TEST POINT		
TP102	SSV1096-001	TEST POINT		
TP103	SSV1096-001	TEST POINT		

6.2 SSG board assembly list [0][2]

SCK2324-02-N0A/P0A

[0][2]□□□□□□

Symbol No.	Part No.	Part Name	Description	
IC203	MC14046BF	I.C.(M)	MOTOROLA	
IC204	NJM2903M	I.C.(M)	JRC	
IC205	TC4S01F	I.C.(M)	TOSHIBA	
IC206	CXD1030M	I.C.(M)	SONY	
IC207	TC4S01F	I.C.(M)	TOSHIBA	
IC208	TC4S01F	I.C.(M)	TOSHIBA	
IC209	TC4S01F	I.C.(M)	TOSHIBA	
IC210	MC14538BFL	I.C.(M)	MOTROLA	
IC211	NJM2904M	I.C.(M)	JRC	
IC212	NJM2903M	I.C.(M)	JRC	
IC213	TC7S00F	I.C.(M)	TOSHIBA	
IC214	TC7S00F	I.C.(M)	TOSHIBA	
IC215	TC74HC193AF	I.C.(M)	TOSHIBA	
IC216	TC74HC193AF	I.C.(M)	TOSHIBA	
IC217	TC74HC40103AF	I.C.(M)	TOSHIBA	
IC218	TC4520BF	I.C.(M)	TOSHIBA	
IC219	TC7S00F	I.C.(M)	TOSHIBA	
IC220	TC4S01F	I.C.(M)	TOSHIBA	
IC221	TC4S01F	I.C.(M)	TOSHIBA	
IC222	TC7S00F	I.C.(M)	TOSHIBA	
IC223	TC4S69F	I.C.(M)	TOSHIBA	
IC224	TC4S69F	I.C.(M)	TOSHIBA	
Q221	2SA1532(BC)	TRANSISTOR	MATSUSHITA	
Q250	2SC3930(BC)	TRANSISTOR	MATSUSHITA	
Q251	2SA1532(BC)	TRANSISTOR	MATSUSHITA	
D201	MA153	DIODE	MATSUSHITA	
D202	HVU200A3	V.C.DIODE	HITACHI	
D203	MA153	DIODE	MATSUSHITA	
R210	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R220	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R223	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R225	NRSA02J-474	M.G.RESISTOR	470K	1/10W
R226	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R227	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R228	NRSA02J-822	M.G.RESISTOR	8.2K	1/10W
R229	NRSA02J-123	M.G.RESISTOR	12K	1/10W
R230	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R231	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R232	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R235	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R236	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R237	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R238	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R239	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R240	NRSA02J-471	M.G.RESISTOR	470	1/10W
R241	NRSA02J-471	M.G.RESISTOR	470	1/10W
R250	NRSA02J-560	M.G.RESISTOR	56	1/10W
R251	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R252	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R253	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R254	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R255	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R256	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R257	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R258	NRSA02J-103	M.G.RESISTOR	10K	1/10W

Symbol No.	Part No.	Part Name	Description	
R259	NRSA02J-393	M.G.RESISTOR	39K	1/10W
R260	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R261	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R271	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R272	NRSA02J-184	M.G.RESISTOR	180K	1/10W
R273	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R274	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R275	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R276	NRSA02J-684	M.G.RESISTOR	680K	1/10W
R277	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R278	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R279	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R280	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R281	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R282	NRSA02J-684	M.G.RESISTOR	680K	1/10W
R286	NRSA02J-563	M.G.RESISTOR	56K	1/10W(U)
	NRSA02J-335	M.G.RESISTOR	3.3M	1/10W(E)
R287	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R288	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R291	NRSA02J-223	M.G.RESISTOR	22K	1/10W
C205	NCT03CH-101	CER.CAPACITOR	100P	50V
C207	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C222	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C223	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C224	NCT03CH-820	CER.CAPACITOR	82P	50V
C225	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C226	NCB21HK-332	CER.CAPACITOR	3300P	50V
C227	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C229	NCT03CH-101	CER.CAPACITOR	100P	50V
C230	NCT03CH-101	CER.CAPACITOR	100P	50V
C231	NCT03CH-101	CER.CAPACITOR	100P	50V
C232	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C233	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C234	NCT03CH-470	CER.CAPACITOR	47P	50V
C235	NCB21HK-182	CER.CAPACITOR	1800P	50V
C236	NCT03CH-470	CER.CAPACITOR	47P	50V
C237	NCT03CH-470	CER.CAPACITOR	47P	50V
C238	NEA10JM-107	E.CAPACITOR	100	6.3V
C239	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C250	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C251	NEF11AM-475	TAN.CAPACITOR	4.7	10V
C252	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C253	NCT03CH-470	CER.CAPACITOR	47P	50V
C254	NCT03CH-101	CER.CAPACITOR	100P	50V
C255	NCB21HK-102	CER.CAPACITOR	1000P	50V
C256	NCB21HK-103	CER.CAPACITOR	0.010	50V
C257	NEA10JM-336	E.CAPACITOR	33	6.3V
C258	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C259	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C260	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C261	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C263	NCT03CH-681	CER.CAPACITOR	680P	50V(E)
C264	NCT03CH-681	CER.CAPACITOR	680P	50V(E)
C265	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C266	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C267	NCT03CH-3R0	CER.CAPACITOR	3.0P	50V
C269	NCT03CH-3R0	CER.CAPACITOR	3.0P	50V

6.3 EE board assembly list [0][3]

SCK2324-03-N0A/P0A [0][3]□□□□□□

Symbol No.	Part No.	Part Name	Description
VC200	NAT3112-200RZ	TRIM.CAPACITOR	20P
L201	SSV1330-150	COIL	15μH
L202	SSV1330-150	COIL	15μH
L203	SSV2029-001	COIL	10μH
L204	SSV1330-150	COIL	15μH
TP200	SSV1096-001	TEST POINT	
TP201	SSV1096-001	TEST POINT	
TP202	SSV1096-001	TEST POINT	

Symbol No.	Part No.	Part Name	Description	
IC401	NJM2904M	I.C.(M)	JRC	
Q401	2SB1218A(RS)	TRANSISTOR	MATSUSHITA	
Q402	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
Q403	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
Q405	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
R401	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R402	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R403	NRSA02J-563	M.G.RESISTOR	56K	1/10W
R404	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R405	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R406	NRSA02J-221	M.G.RESISTOR	220	1/10W
R407	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R408	NRSA02J-221	M.G.RESISTOR	220	1/10W
R410	NRSA02J-393	M.G.RESISTOR	39K	1/10W
R411	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R412	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R413	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R414	NRSA02J-823	M.G.RESISTOR	82K	1/10W
R415	NRSA02J-823	M.G.RESISTOR	82K	1/10W
R416	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R417	NRSA02J-471	M.G.RESISTOR	470	1/10W
R418	NRSA02J-471	M.G.RESISTOR	470	1/10W
R419	NRSA02J-101	M.G.RESISTOR	100	1/10W
VR401	QVP8609-103	TRIM.RESISTOR	10K	
C401	NEA11HM-105	E.CAPACITOR	1.0	50V
C402	NEA11CM-226	E.CAPACITOR	22	16V
C403	NEA10JM-336	E.CAPACITOR	33	6.3V
C404	NEF11AM-475	TAN.CAPACITOR	4.7	10V
C405	NEA11HM-105	E.CAPACITOR	1.0	50V
C406	NCB21HK-473	CER.CAPACITOR	0.047	50V
C407	NCB21HK-473	CER.CAPACITOR	0.047	50V
C408	NCB21HK-102	CER.CAPACITOR	1000P	50V
C409	NCT03CH-152	CER.CAPACITOR	0.0015	50V
C410	NCT03CH-152	CER.CAPACITOR	0.0015	50V
C411	NCT03CH-152	CER.CAPACITOR	0.0015	50V
C412	NCT03CH-152	CER.CAPACITOR	0.0015	50V
C413	NCT03CH-152	CER.CAPACITOR	0.0015	50V
L401	SSV1330-150	COIL	15μH	
J401	SCV2101-001	CONNECTOR		
CN401	SSV1321-006	CONNECTOR	6PIN	

6.4 SUB board assembly list [0][4]

SCK2324-04-00A [0][4]□□□□□□

Symbol No.	Part No.	Part Name	Description	
IC302	FA7611M	I.C.(M)	FUJI ELECTRIC	
IC303	TC74HC74AF	I.C.(M)	TOSHIBA	
IC304	MC74HC02AF	I.C.(M)	MOTOROLA	
IC306	NJM2904M	I.C.(M)	JRC	
Q301	2SB1218A(RS)	TRANSISTOR	MATSUSHITA	
Q302	2SC2881(Y)	TRANSISTOR	TOSHIBA	
Q303	2SJ128	FET	NEC	
Q304	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
Q305	2SB1218A(RS)	TRANSISTOR	MATSUSHITA	
Q306	2SB1218A(RS)	TRANSISTOR	MATSUSHITA	
Q307	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
Q308	2SD1819A(RS)	TRANSISTOR	MATSUSHITA	
Q311	2SA1736	TRANSISTOR	TOSHIBA	
Q312	2SC2881(Y)	TRANSISTOR	TOSHIBA	
D301	SE059	DIODE	FUJI ELECTRIC	
D302	MA152WA	DIODE	MATSUSHITA	
D303	SE046	DIODE	FUJI ELECTRIC	
D304	MA152WA	DIODE	MATSUSHITA	
D305	MA152WA	DIODE	MATSUSHITA	
D306	MA152WA	DIODE	MATSUSHITA	
D307	MA152WA	DIODE	MATSUSHITA	
D308	MA152WA	DIODE	MATSUSHITA	
D309	HZM5.6NB1	ZENNER DIODE	HITACHI	
D310	HZM5.6NB1	ZENNER DIODE	HITACHI	
D311	HZM5.6NB1	ZENNER DIODE	HITACHI	
D312	MA153	DIODE		
R301	NRSA02J-393	M.G.RESISTOR	39K	1/10W
R302	NRSA02J-394	M.G.RESISTOR	390K	1/10W
R303	NRSA02J-224	M.G.RESISTOR	220K	1/10W
R304	NRSA02J-184	M.G.RESISTOR	180K	1/10W
R305	NRSA02J-471	M.G.RESISTOR	470	1/10W
R306	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R307	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R308	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R309	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R310	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R311	NRSA02J-471	M.G.RESISTOR	470	1/10W
R312	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R313	NRSA02J-182	M.G.RESISTOR	1.8K	1/10W
R314	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R315	NRSA02J-123	M.G.RESISTOR	12K	1/10W
R316	NRSA02J-681	M.G.RESISTOR	680	1/10W
R317	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R318	NRSA02J-221	M.G.RESISTOR	220	1/10W
R319	NRSA02J-221	M.G.RESISTOR	220	1/10W
R320	NRSA02J-331	M.G.RESISTOR	330	1/10W
R321	NRSA02J-681	M.G.RESISTOR	680	1/10W
R322	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R323	NRSA02J-471	M.G.RESISTOR	470	1/10W
R331	NRSA02J-181	M.G.RESISTOR	180	1/10W
R332	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R333	NRSA02J-471	M.G.RESISTOR	470	1/10W
R334	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R335	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R336	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R337	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W

Symbol No.	Part No.	Part Name	Description	
R340	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R341	NRSA02J-822	M.G.RESISTOR	8.2K	1/10W
R342	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R343	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R344	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R345	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R346	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R347	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R348	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R349	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
C302	NCB21EK-473	CER.CAPACITOR	0.047	25V
C303	NCB21HK-223	CER.CAPACITOR	0.022	50V
C304	NCT03CH-271	CER.CAPACITOR	270P	50V
C305	NCT03CH-821	CER.CAPACITOR	820P	50V
C306	NEF10JM-226	TAN.CAPACITOR	22	6.3V
C308	NCB21EK-473	CER.CAPACITOR	0.047	25V
C309	NCT03CH-220	CER.CAPACITOR	22P	50V
C310	NCB21EK-473	CER.CAPACITOR	0.047	25V
C311	NEA11EM-106	E.CAPACITOR	10	25V
C312	NEA11EM-106	E.CAPACITOR	10	25V
C313	NEA11AM-336	E.CAPACITOR	33	10V
C314	NEA11EM-106	E.CAPACITOR	10	25V
C315	NCB21EK-473	CER.CAPACITOR	0.047	25V
C316	NEA11CM-476	E.CAPACITOR	47	16V
C317	NCB21EK-473	CER.CAPACITOR	0.047	25V
C318	NEA11CM-226	E.CAPACITOR	22	16V
C319	NCB21HK-102	CER.CAPACITOR	1000P	50V
C323	NEA11EM-106	E.CAPACITOR	10	25V
C325	NEA11AM-336	E.CAPACITOR	33	10V
C326	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C327	NEA11AM-336	E.CAPACITOR	33	10V
C328	NCT03CH-390	CER.CAPACITOR	39P	50V
C329	NCT03CH-390	CER.CAPACITOR	39P	50V
C332	NEA11EM-106	E.CAPACITOR	10	25V
C335	NCB21HK-222	CER.CAPACITOR	2200P	50V
C336	NCB21HK-472	CER.CAPACITOR	4700P	50V
L301	SCV1950-470	PEAKING COIL	47μH	
L302	SCV2390-220Z	PEAKING COIL	22μH	

6.5 TER board assembly list [0][5]

SCK2327-02-N0A/P0A [0][5]□□□□□□

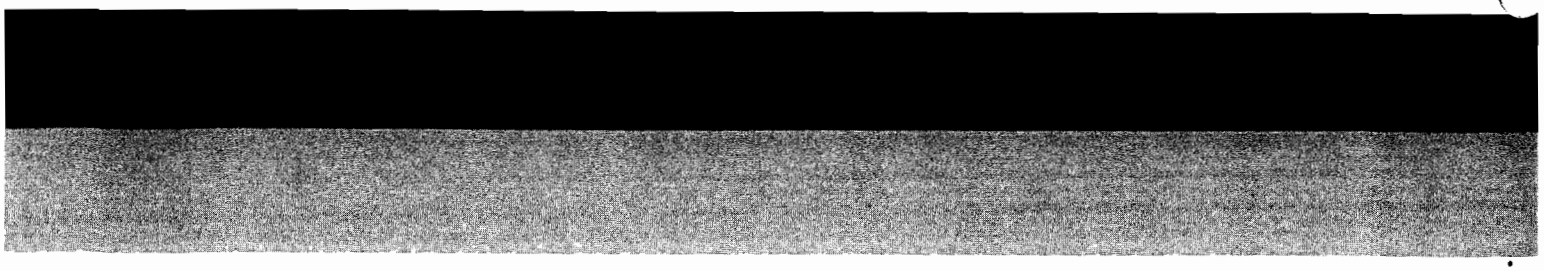
Symbol No.	Part No.	Part Name	Description	
R51	QRD161J-471	CARBON RESISTOR	470	1/6W
C51	QCBB1HK-101	CER.CAPACITOR	100P	50V
LC1	EXC-EMT271BC	EMI FILTER	MURATA	
CN1	SSV1283-003	CONNECTOR	3PIN	
TB51	SSV1344-003	TERMINAL BOARD		

6.6 PS board assembly list [0][6]

SCK2327-01-U0A/E0A [0][6]□□□□□□

Symbol No.	Part No.	Part Name	Description	
Q1	2SC3311A(RS)	TRANSISTOR	MATSUSHITA	
Q2	2SD1275(P,Q)	TRANSISTOR	MATSUSHITA	
Q3	2SC3311A(RS)	TRANSISTOR	MATSUSHITA	
Q4	2SC3311A(RS)	TRANSISTOR	MATSUSHITA	
Q5	2SA684(R)	TRANSISTOR	MATSUSHITA	
Q6	2SC2655(Y)	TRANSISTOR	TOSHIBA	
Q7	2SC2655(Y)	TRANSISTOR	TOSHIBA	
Q8	2SA1309A(RS)	TRANSISTOR	MATSUSHITA	
Q9	2SA1309A(RS)	TRANSISTOR	MATSUSHITA	
Q10	2SA1309A(RS)	TRANSISTOR	MATSUSHITA	
D1	HZS12JB2	ZENER DIODE	HITACHI	
D2	ERA82-004	DIODE	FUJIELECTRIC	
D3	ERA82-004	DIODE	FUJIELECTRIC	
D4	ERA82-004	DIODE	FUJIELECTRIC	
D5	ERA82-004	DIODE	FUJIELECTRIC	
D6	HZS6.8JB2	ZENER DIODE	HITACHI	
LD1	LN36BP	L.E.D.	MATSUSHITA	
R1	QRD161J-471	CARBON RESISTOR	470	1/6W
R2	QRD161J-103	CARBON RESISTOR	10K	1/6W
R3	QRD161J-391	CARBON RESISTOR	390	1/6W
R4	QRD161J-100	CARBON RESISTOR	10	1/6W
R5	QRD161J-103	CARBON RESISTOR	10K	1/6W
R6	QRD161J-472	CARBON RESISTOR	4.7K	1/6W
R7	QRD161J-103	CARBON RESISTOR	10K	1/6W
R8	QRD161J-273	CARBON RESISTOR	27K	1/6W
R9	QRD161J-103	CARBON RESISTOR	10K	1/6W
R10	QRD161J-472	CARBON RESISTOR	4.7K	1/6W
R11	QRD161J-221	CARBON RESISTOR	220	1/6W
R12	QRD161J-221	CARBON RESISTOR	220	1/6W
R13	QRD161J-561	CARBON RESISTOR	560	1/6W
R14	QRD161J-0R0	CARBON RESISTOR	0	1/6W
R15	QRD161J-151	CARBON RESISTOR	150	1/6W
R16	QRD161J-470	CARBON RESISTOR	47	1/6W
R17	QRD161J-332	CARBON RESISTOR	3.3K	1/6W
R18	QRD161J-470	CARBON RESISTOR	47	1/6W
R19	QRD161J-151	CARBON RESISTOR	150	1/6W
R20	QRD161J-471	CARBON RESISTOR	470	1/6W
R21	QRD161J-103	CARBON RESISTOR	10K	1/6W
C1	QETA1EM-107	E.CAPACITOR	100	25V
C2	QETA1AM-476	E.CAPACITOR	47	10V
C3	QETA1AM-476	E.CAPACITOR	47	10V
C4	QETA1EM-477	E.CAPACITOR	470	25V
C5	QCS11HJ-101	CER.CAPACITOR	100P	50V
C6	QETA1HM-475	E.CAPACITOR	4.7	50V
C7	QETA1EM-107	E.CAPACITOR	100	25V
C8	QETA1EM-107	E.CAPACITOR	100	25V
C9	QETC1AM-108	E.CAPACITOR	1000	10V
C11	QEX41CM-156	E.CAPACITOR	15	16V
C12	QEX41AM-106	E.CAPACITOR	10	10V
C13	QETA1AM-107	E.CAPACITOR	100	10V
C14	QETA1AM-107	E.CAPACITOR	100	10V
C15	QER41CM-107	E.CAPACITOR	100	16V
C16	QER41HM-475	E.CAPACITOR	4.7	50V
C17	QCZ0206-104	CER.CAPACITOR	0.10	

Symbol No.	Part No.	Part Name	Description
C18	QETA1AM-107	E.CAPACITOR	100 10V
C19	QETA1AM-107	E.CAPACITOR	100 10V
L1	SCV2244-391	COIL	390μH
L2	SSV1606-001	PEAKING COIL	64μH
L3	SCV2244-391	COIL	390μH
L4	SSV1606-001	PEAKING COIL	
S1	SCV1335-004	DIP SWITCH	
CN1	SSV1283-003	CONNECTOR	3PIN
CN2	SSV1320-006	CONNECTOR	6PIN
CN3	SSV1320-018	CONNECTOR	18PIN
JK1	SSV1323-001	RCA PIN JACK	
JK2	SSV1306-001	BNC CONNECTOR	
T1	SCV2136-001	TRANSFORMER	



JVC

VICTOR COMPANY OF JAPAN, LIMITED
CAMERA SYSTEMS DIVISION

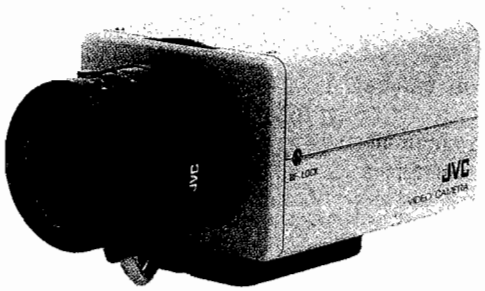
Printed in Japar

INSTRUCTIONS

JVC

TK-S140

VIDEO CAMERA



This lens is optional

For Customer Use:
Enter below the Serial No. which is located on the top of the body. Retain this information for future reference.

Model No. **TK-S140**

Serial No.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equi-lateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

(For U Version)

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Information for Canada
This product complies with D.O.C limits [C.R.C., C.1374] pertaining to class B digital apparatus.

Renseignement pour Canada
Ce produit est conforme aux normes du M.D.C. (C.R.C., ch 1374) s'appliquant aux appareils numériques de classe B.

Information for USA
This device complies with Part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

Due to design modification, data given in this instruction book are subject to possible change without prior notice.

Thank you for purchasing the JVC TK-S140 video camera.
To obtain the best results from your new camera, read this instructions carefully before use; retain the manual for future reference.

CONTENTS

FEATURES 2
PRECAUTIONS 2
CONTROLS, CONNECTORS AND INDICATORS 3
CONNECTION METHOD 5
LENS 6
SPECIFICATIONS 9

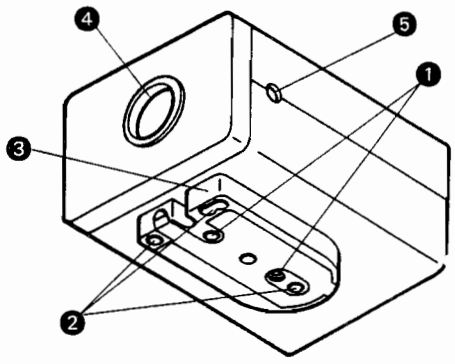
FEATURES

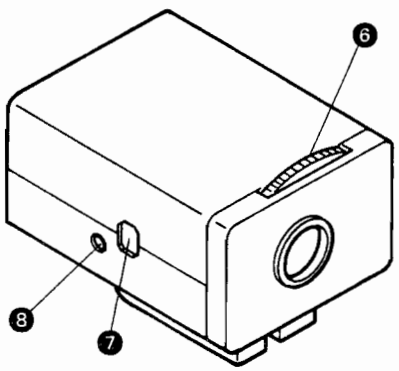
- High sensitivity; low residual image; low image distortion, resists electric and magnetic fields and vibration. The camera can be used in various fields.
- Since the camera uses 24V AC/12V DC, it can be installed and built into a system easily.
- Internal, external, and line lock synchronization can be selected by switch.
- The automatic electronic shutter adjusts its speed automatically to provide correct exposure even if a manual iris lens is used.
- The built-in backlight compensation function improves the image quality for backlit subjects.
- The back focus adjustment function allows easy adjustment and installation.
- C-mount or CS-mount lens can be attached to the camera with the lens mount change function.

PRECAUTIONS

- Since this camera contains an AGC circuit, the sensitivity increases automatically in dark places, and the image looks graing, but this is not a failure.
- If a zoom lens is used, mount it on the camera and check the back focus before mounting the camera. This also applies to lens ALC and LEVEL. (See the instructions for details.)
- If a high-intensity object (such as a lamp) is shot, the image on the screen may have vertical lines (smear) or blur (blooming) at its periphery (especially in AES mode). This is a characteristic of the CCD, and is not a defect.
- If an EE lens is used, set the electronic automatic shutter switch (AES) to OFF. If set to ON, flickering may occur. If a manual iris lens is used, set the AES to ON.

CONTROLS, CONNECTORS AND INDICATORS





❶ Camera mounting screw holes (1/4")
These screw holes are used to install the camera on a mount or PAN/TILT UNIT. Use either of the two holes according to the situation.

❷ Camera mounting bracket fixing screws (three)

❸ Camera mounting bracket
The camera mounting bracket is mounted on bottom of the camera at the factory. It can be installed on the top of the camera if necessary. Fit the camera mounting bracket on the top of the camera head with the three screws ❷.

❹ Lens mount
This mount is used to install a C-mount lens (1/3, 1/2, 2/3, 1 inch) or CS-mount lens (1/2, 1/3 inch)

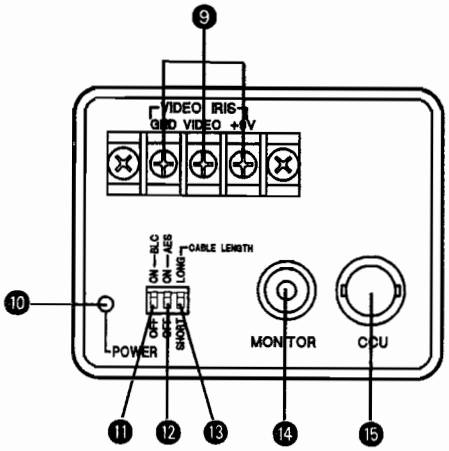
❺ [BF LOCK] Back focus locking screw
This screw locks the back focus adjustment mechanism.

❻ Back focus adjustment ring
This ring is used to adjust the back focus and change the lens mount method. Loosen screw ❺ to turn the ring, and tighten the screw after adjustment.

❼ [DC IRIS] DC iris connector
Connect an auto-iris lens that does not contain an EE amplifier. If the lens cable has a different type of plug, use the 4-pin plug supplied.

❽ [LEVEL] Sensitivity adjustment volume
Adjust the brightness of the image when the DC iris connector ❼ is used.

Monitor screen	LEVEL turning direction
Too dark	Counterclockwise (Towards L)
Too bright	Clockwise (Towards H)



⑨ [VIDEO IRIS] Video iris terminal
Connected to an auto-iris lens containing an EE amplifier.

⑩ [POWER] Power lamp
Lights when the power is on.

⑪ [BLC] Backlight compensation switch
This switch improves an image that is darkened because of backlighting.
Set this switch to ON for backlight subjects.

⑫ [AES] Automatic Electronic Shutter switch
If this switch is set to "ON" when the manual iris lens is used, the shutter speed varies according to the brightness of the object, and the brightness of the image is automatically adjusted.
If the aperture is fixed or if an EE lens is used, set this switch to OFF.

NOTE
- Hunting may occur at a certain object brightness due to the mechanism of the AES circuit, but this is not a failure.

⑬ [CABLE LENGTH] Cable length select switch
Switch this according to the length of the coaxial cable used to connect the camera and camera control unit.
(Refer to CONNECTION METHOD)

⑭ [MONITOR] Monitor output connector
Connect a monitor TV here when determining the camera angle. As this is a high impedance output, remove the terminating resistor of the monitor. The maximam length of the connecting cable is 5m.

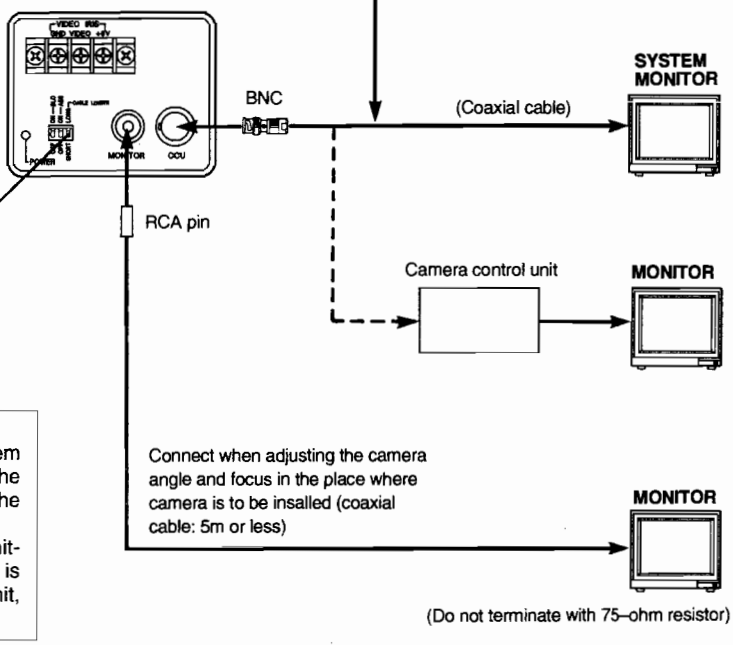
⑮ [CCU] CCU connector
Connector for the system monitor or camera control unit. This cannot be connected to an ordinary video monitor,etc.

CONNECTION METHOD

• Connection examples

Type of cable	Max. Extension Length
3C-2V (RG-59/U eqv.)	200 m (600 ft)
5C-2V	350 m (1100 ft)
7C-2V (RG-11/U eqv.)	500 m (1600 ft)

Length of cable between the camera and camera control unit	CABLE LENGTH switch position
0 to 250 m	SHORT
251 to 500m	LONG


BNC
(Coaxial cable)
SYSTEM MONITOR
RCA pin
Camera control unit
MONITOR
Connect when adjusting the camera angle and focus in the place where camera is to be insalled (coaxial cable: 5m or less)
MONITOR
(Do not terminate with 75-ohm resistor)

NOTES
- The maximum length of the cable between the camera and system monitor or camera control unit differs with the coaxial cable and the unit used. Follow the explanation in the instruction manual of the unit.
- Since the power, video signals, sync signals, etc. are transmitted via the connection cable between the camera and unit, it is impossible to use a cable compensator, video distribution unit, etc.

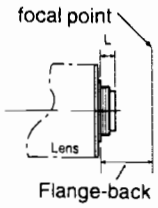
LENS

• Mounting a lens

1. Before mounting a lens, check whether it is a C-mount or CS-mount one. This camera has a CS-mount. (Fig. 1-1) If a C-mount lens is used, turn the back focus adjustment ring in the direction of the arrow in the Fig. 1-1 to change the mounting method. (Fig. 1-2 shows the state for the C-mount.)

CAUTIONS

- The ring cannot be turned with fingers from a certain point. Use a screwdriver or any other tool with a thin tip to turn it further. (Fig. 1-3)
- Dimension L of the lens shown in the illustration below must be as shown in the table below. If L exceeds the value in the table, it may damage the inside of the lens or correct mounting may be impossible; never use such lenses. Do not attach the C-mount lens when using a CS-mount.



Lens	Flange back	Dimension L
C mount lens	17.526 mm	12 mm or less
CS mount lens	12.5 mm	8.5 mm or less

2. Mount the lens on the camera by turning the lens clockwise. Adjust its position.
3. If the lens has an auto-iris mechanism, connect the lens cable.
   - Ⓐ If the lens does not contain an EE amplifier, connect the cable to the DC IRIS connector on the side. If the lens cable has a different type of plug, use the 4-pin plug supplied. (Fig. 2-1)
   - Ⓑ If the lens contains an EE amplifier, connect the cable to the VIDEO IRIS terminal on the rear. (Fig. 2-2)

Fig. 1

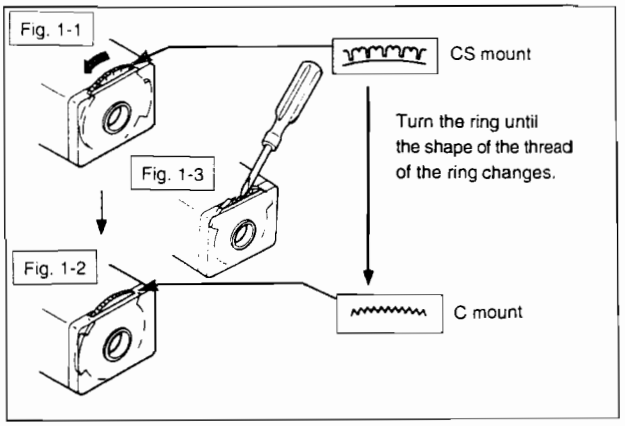


Fig. 2

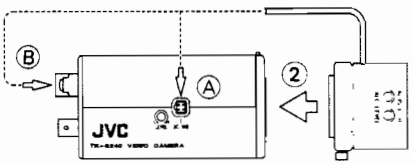


Fig. 2-1

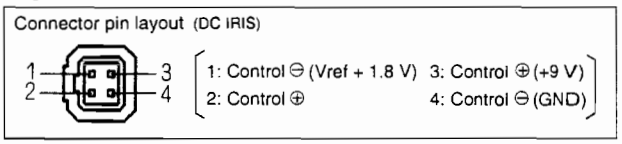
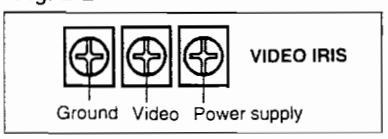


Fig. 2-2

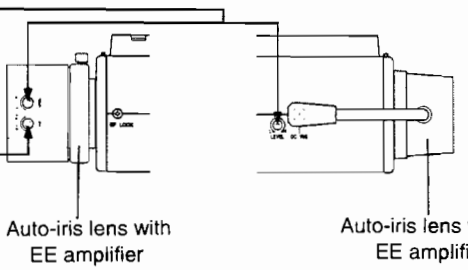


- Connect the camera according to the connection method, turn it on, display an image on the monitor, and check the image. The camera has been factory-adjusted to the widest range, but it may need to be adjusted according to the object conditions or combination of lenses. If the image is unnatural, adjust it as follows:
- **LEVEL adjustment**

Monitor screen	LEVEL turning direction
Too dark	Counterclockwise (Toward L)
Too bright	Clockwise (Toward H)

- **ALC adjustment**

Monitor screen	ALC turning direction
Part (high-intensity part) of the screen halates.	Clockwise (Toward Pk)
Other part of screen (except high-intensity part) darkens.	Counterclockwise (Toward Av)



CAUTION: If the sensitivity adjustment [LEVEL] is turned excessively to L , the sensitivity increases because of the AGC function of the camera, and the image looks graing.

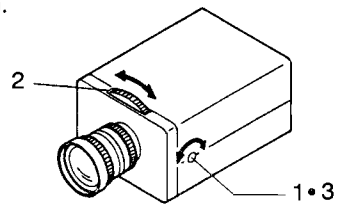
- **Back focus adjustment**

The back focus has been factory-adjusted to the best point for CS-mount lenses, but it may need to be adjusted if the mount is changed to the C-mount or if a lens is used. If required, adjust it as follows.

- **With a fixed-focus lens**

If the focus is not adjusted correctly by rotating the lens focus ring, adjust the back focus.

1. Loosen the back focus securing screw by turning it counterclockwise (↶) with a screwdriver.
2. Turn the back focus adjustment ring to focus the lens at the best point.
3. Tighten the back focus securing screw by turning it clockwise (↷).



- **With a zoom lens**

If the image is out of focus when zooming (wide-angle - telephoto), adjust the camera as follows:

① Shoot a comparatively dark scene with thin lines about. three meters away from the camera.
② Set the lens to the maximum telephoto position, and adjust the lens focus.
③ Set the lens to the maximum wide-angle position, and adjust the back focus.
④ Repeat steps ② and ③ two or three times.

- **Installing the EE cable**

Opening/closing the cover

• Opening • Closing

If the cable is too long, arrange it in the camera mounting bracket as shown below.

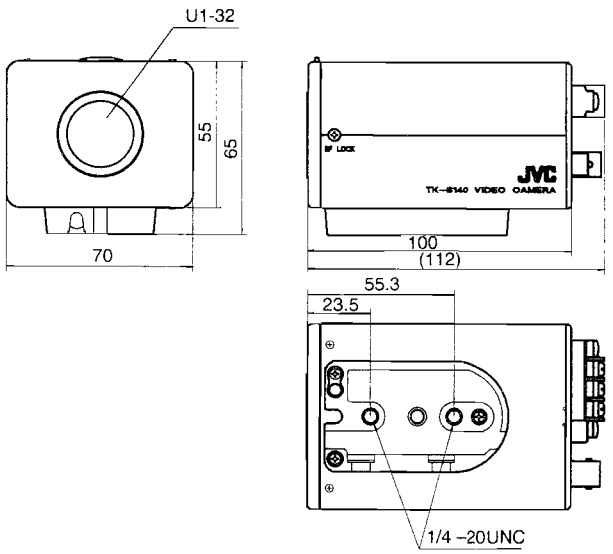
Arranging the iris cable (example)

• Threading • Straight feeding

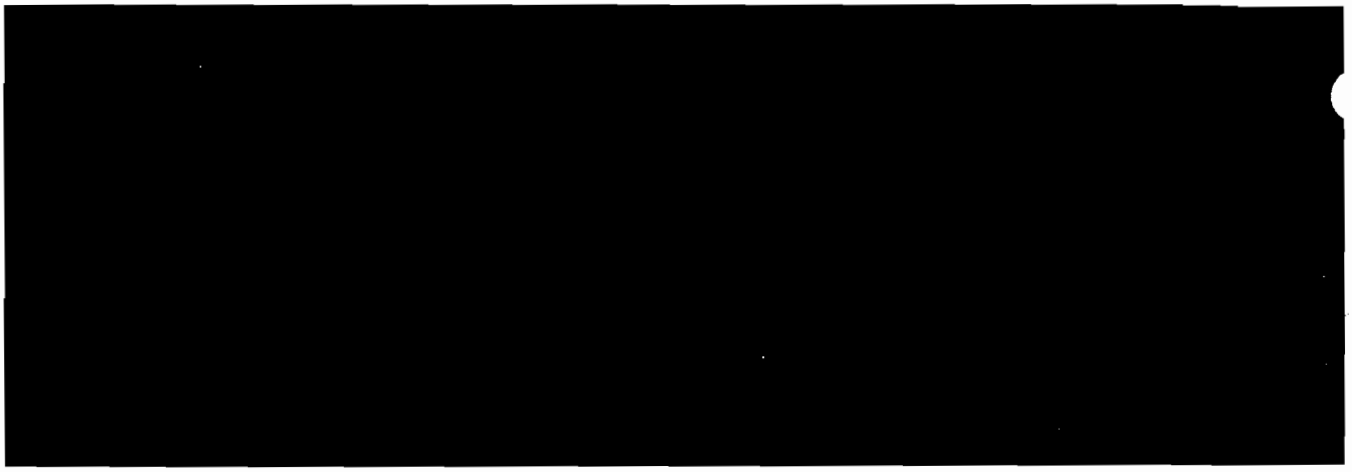
SPECIFICATIONS

Image sensor	: Interline-transfer CCD
Number of effective pixels	: 250,000 (512 (H) × 492 (V)): U type 300,000 (512 (H) × 582 (V)): E type
Image size	: 1/3 inch
Synchronization method	: Genlock (special sync signal from exclusive CCU)
Scanning frequency	: (H) 15.73 kHz (V) 59.95 Hz: U type (H) 15.625 kHz (V) 50 Hz: E type
Resolution	: 380 TV lines (horizontal)
Video S/N ratio	: 50 dB
Minimum required illumination	: 0.3 lx (F1.4)
Lens mount	: C/CS mount
Power supply	: Fed from an exclusive CCU
Power consumption	: 16–22 V, 210 mA: U type 16–22 V, 190 mA: E type
Operating temperature range	: –10°C to +50°C (Recommended temperature range: 0°C to +40°C)
Weight	: 410 g
Provided accessory	: Warranty card ..... ×1 : U only 4P Plug .....×1

Dimensions (mm):



Design and specifications are subject to change without notice.



JVC

VICTOR COMPANY OF JAPAN, LIMITED

Printed in Japan
SC96573